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West Point and the Mighty Hudson

INFANTRY JOURNAL

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# Infantry vs. Attack Aviation

MAJ. LEONARD R. BOYD, Infantry[1]
and
1ST LIEUT. JOSEPH I. GREENE, 24th Infantry[2]

BECAUSE of the rapid development of military and commercial airplanes during and since the World War, there is a general assumption among those who are not connected with the military service that the next war will be fought and decided chiefly by the air forces of the combatant nations. The apparently tremendous possibilities of attack aviation have caused some in the Army also to accept this belief. However, such opinions are not generally held by officers of the ground and air services who understand the major missions of each and the necessity for thorough cooperation in the attainment of their tasks and objectives. In order to show that there is little likelihood of the displacement of the Doughboy and his rifle by the airplane, we are going to present a discussion of the studies made by the ground troops, and the Infantry in particular, in counteracting air attacks.

Perhaps the best way, short of the test of war itself, to examine into the anti-aircraft training of infantry is by the method of comparison. In this article, the authors will use that method. They will try to present, fairly, the present possibilities both of attack aviation and of defense from the ground, in the light of late developments. As a basis for discussion they will describe an imaginary air attack by a flight of three planes against a battalion of infantry. The comparison thus brought out will be based on the latest training ideas of the Air and Infantry branches of our Army.

First, the air force and the ground troops will be compared as to total fire power. A description of the imaginary attack will follow; after which will come a detailed analysis of the probable results and also the conclusions drawn therefrom.

According to present Air Corps teachings, attacks will be made only by large numbers of airplanes upon large bodies of troops whose positions on the march or in bivouac are accurately known. For example, about 150 planes will simultaneously attack a marching division, each flight of three planes taking for its assignment 1,000 yards of road space. As a battalion of infantry occupies almost exactly that amount of road space (1,050 yards), each battalion of the division will then

[1] Formerly Test Officer, Department of Experiment.
[2] Test Officer, Department of Experiment.



West Point and the Mighty Hudson

receive the attack of one flight of planes. The element of surprise is highly important in this kind of attack; hence the planes will make their approach and deliver their attack at a minimum altitude. This, according to Air Corps authorities, is not greater than fifty feet. The duration of the attack with the Air Corps equipment now used will be about a half minute, after which the surviving planes must return over hostile territory, of course, to their airdromes in order to replenish machine gun ammunition and bombs.

Late types of attack planes have four machine guns for frontal fire, operated by one trigger. Each gun is capable of firing at the rate of 1,000 to 1,200 rounds per minute. For purposes of discussion we shall assume an average of 1,100 rounds per minute. Each gun has available for the attack 600 rounds, or 32.7 seconds of continuous fire. Reloading and correcting of most kinds of stoppages can be done only at the landing field. Thus the three planes can fire a maximum of 7,200 rounds in 32.7 seconds if all guns are in perfect adjustment and no defective ammunition causes jams. The four guns in each plane are adjusted before the plane leaves the landing field. They are set at a slight downward angle from the level flight path of the airplane so that the fire is distributed over a long narrow strip to the front. The three planes normally attack flying close abreast and along parallel paths of flight. As the guns are fixed in the planes, the pilots aim them by directing their courses of flight over the target.

Each plane of the attack type also carries ten time-fuse, fragmentation bombs. These the pilot can release at will; singly, in groups, all at once, or at regular intervals. They are set to explode five seconds after impact, in order to allow time for the plane that drops them to get well out of range of the fragments of its own bombs.

The infantry battalion on the ground contains 852 officers and men. Their arms number 550 rifles, 250 pistols, 54 automatic rifles, and 12 machine guns. In 15 seconds, which is the average time an attacking plane is within reasonable range of the individual soldier, the rifleman can fire five aimed shots at the fuselage of an approaching airplane; the automatic riflemen, firing semi-automatically, can fire at least ten aimed shots; and the machine gunners, with guns working perfectly, can fire 150 rounds each.[3] The total fire is then as follows:

| | | *Rounds* |
|---|---|---|
| Rifles | 550 x 5 | 2,750 |
| Automatic rifles | 54 x 10 | 540 |
| Machine guns | 12 x 150 | 1,800 |
| Total | | 5,090 |

This figure does not include pistol shots. The maximum range of the pistol is about 1,600 yards. Its usual limitation to short ranges results, of course, from the unsteadiness of the unsupported arm in holding this weapon, and its possibilities against low-flying planes are not developed. There is no reason, however, why the pistol can not be fired to good advantage. If those who carry it are trained in a proper method of firing at fast-moving targets, they should reach a considerable degree of efficiency. Should each man not engaged in other firing (about 200 in all in the bat-

[3] The use of a stronger machine gun driving spring which brings the normal rate of fire up to 600 rounds per minute, has recently been recommended by the Infantry Board.

talion) fire at least one aimed shot as a plane passes overhead at a range of 50 to 75 feet, many hits are certain.[4]

Let us now imagine that a battalion of infantry receives orders to march in the daytime to a point twenty miles distant. This battalion consists of troops of average training that have been under fire and have had experience in an air attack. The battalion commander, by consulting his map, sees that his march must be made over roads which offer, in places, favorable opportunity for surprise airplane attacks upon his forces. Consequently he makes provision for protecting groups before the march begins. Groups on the flanks will march parallel to the main body and generally within 600 yards of it. Others will march several hundred yards to the front and rear. The duty of all such groups will be to watch and to listen for hostile aircraft and give warning of their approach.

In order to present a purely infantry-airplane comparison we shall assume that the ground troops receive no help from friendly air forces.

The march begins. Shoulder weapons are carried loaded and machine guns in anti-aircraft position upon their wheeled mounts, loaded and ready to fire. The battalion reaches one of the points on the road at which the enemy can launch an air attack to greatest advantage—a straight, open stretch of road, bordered by hills and valleys or woods, which can hide low-flying airplanes, absorb their noise, and thus give the enemy the greatest chance for surprise. The column, 1,050 yards in length, is now the ideal target from the air. At this moment the alarm sounds. The battalion deploys from 50 to 100 feet to each side of the road center. Riflemen take the sitting position ready to fire the moment targets come within range.[5] Machine guns are ready to fire as soon as the wheeled mount is unlimbered from the ammunition cart and the trail of the mount is dropped. The machine guns, handled by trained troops, are ready to be fired within two or three seconds. The riflemen are deployed and ready to fire in five seconds.

Three attack planes can now be seen flying low over the road and approaching at maximum speed. When they are still nearly a mile away their machine guns suddenly sound above the noise of their motors, and bullets begin to sing past the leading troops. Platoon leaders issue fire orders and the men align their sights on the approaching planes, opening fire when the planes are about 1,000 yards distant. As the planes rapidly come nearer, the whole battalion concentrates its weapons upon the three targets. Here and there men fall wounded, but those who are unhit continue firing with greater and greater accuracy as the targets loom larger. So heavy is this fire from the ground that it is probable that none of the planes reaches a point over the heads of the

[4] The Department of Experiment, The Infantry School, has recommended research along these lines.

[5] The original anti-aircraft rifle training development project, which was completed by the Department of Experiment in 1928, approved by the Infantry Board, and issued in part as tentative TR 300-5, gives the kneeling position for anti-aircraft rifle fire. Since this regulation was submitted to infantry regiments for a year's test and report, there have arisen numerous advocates of the sitting position as being better. It has one important advantage. It exposes considerably less of the firer's body to the machine gun fire from the attacking planes than does the kneeling position. In some cases also it is quite possible that the prone position can be used to advantage.

leading troops of the column. Instead one plane noses downward in a crash. The battalion's fire is concentrated on the remaining two. Of these one falls when its bombs are detonated by the ground fire, and the third, with engine dead, attempts an immediate forced landing.

This is a description of a possible result of such a combat. One or more of the attacking planes may succeed in beginning its bomb dropping, and in rare instances a plane will travel nearly to the end of the column before it is brought down, or will even escape altogether. In order, however, to compare the maximum possible fire effect of both the air attack and the fire of the ground troops, it will be necessary to assume the sequence of events in which all three planes complete the attack before landing or crashing. With this assumption as a basis, we shall now consider in more detail the probable casualties sustained by both sides, in our imaginary battle.

The machine guns of the attacking planes, as we have seen, were opened on the battalion when nearly a mile still intervened. Because the planes fly parallel to the ground at a very low altitude and because the vibration set up by their motors and propellers is great, the nearest bullets from their guns, at any given moment of flight, hit the ground only about a hundred yards in front of the planes, while those which carry farthest strike some 1,600 yards to the front. With throttle open the planes move about 216 feet a second, or 2,353 yards in 32.7 seconds, which is the total possible duration of the continuous machine gun fire of the attack. In 32.7 seconds, therefore, the 7,200 bullets that the three planes' guns have fired, were distributed along a total length equal to the length of the beaten zone at any given moment (1,500 yards) plus 2,353 yards, or 3,853 yards.

Due to the fact that attacking planes fly close to the ground and parallel to it, most of the bullets from their machine guns move upon a flat trajectory close to the ground for some distance before they strike. This characteristic grazing fire is a main basis of belief of many enthusiasts in the omnipotence of the attack airplane. Let us therefore analyze this fire to ascertain the probable percentage of casualties under the conditions, ideal from the air-man's viewpoint, that have been assumed.

Of the four frontal machine guns on each attacking plane, two are on the wings about 15 feet from the long axis of the plane. The other two are synchronized guns firing through the propeller. They are approximately a yard apart and placed just above the fuselage. The usual gun-setting employed is that which makes the fire of the four guns converge at a point 400 feet to the front.

The three planes of a flight normally attack closely abreast, with about 20 feet between wing tips, and along parallel paths of flight. The combined fire of the three planes in this attack formation is illustrated in Figure 1. This figure shows from left to right the positions of the planes at the opening of the fire, and their positions at the end of the attack, respectively. The figure also indicates the total distribution of the fire and its uneven pattern. The terrain beaten by the bullets of the attack may be divided into two parts. In Figure 1, the area inside the heavy double lines, which is 180 feet wide, is the zone of heavy

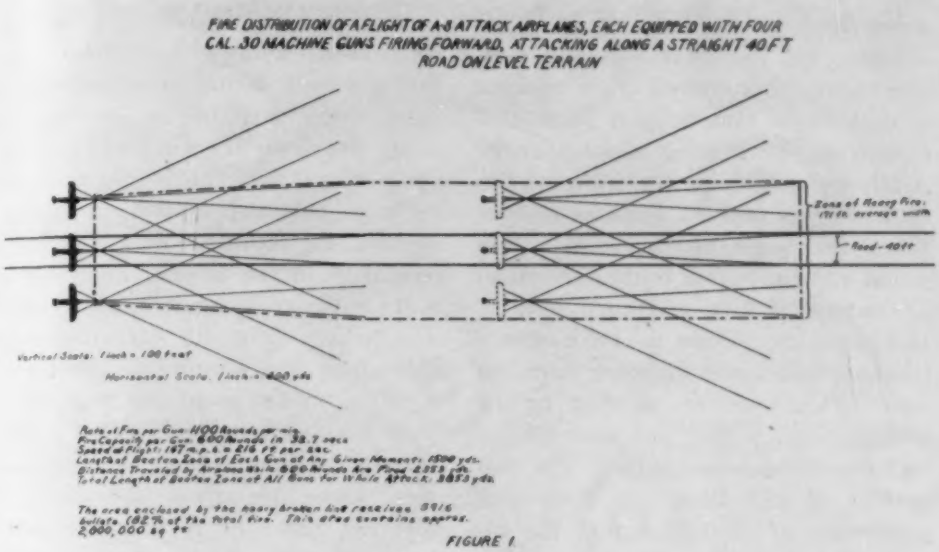
FIRE DISTRIBUTION OF A FLIGHT OF A-8 ATTACK AIRPLANES, EACH EQUIPPED WITH FOUR CAL. 30 MACHINE GUNS FIRING FORWARD, ATTACKING ALONG A STRAIGHT 40 FT ROAD ON LEVEL TERRAIN
Zone of Heavy Fire, 171 ft. average width
Road - 40 ft
Vertical Scale: 1 inch = 100 feet
Horizontal Scale: 1 inch = 400 yds
Rate of Fire per Gun 400 Rounds per min.
Fire Capacity per Gun 600 Rounds in 38.7 secs
Speed of Flight: 147 m.p.h. = 216 ft per sec.
Length of Beaten Zone of Each Gun of Any Given Moment: 1500 yds.
Distance Traveled by Airplane While 600 Rounds Are Fired: 2,253 yds.
Total Length of Beaten Zone of All Guns for Whole Attack: 3853 yds.
The area enclosed by the heavy beaten fire receives 5916.
Delight 1.82 % of the total fire. This area contains approx.
2,000,000 sq ft

FIGURE 1

fire, containing about 82 per cent of the total fire. The outer strips, zones of light fire about 100 feet wide, receive about 9 per cent each. The distance that troops deploy from the road to meet an attack depends entirely on the surprise attack. Often there will not be time to move more than 50 or 75 feet from the road center. We shall assume in the present comparison that the troops did not deploy outside the zone of heavy fire.

A soldier presents a target about one foot in average width and 28 inches in average height when in the sitting position. Now the bullets from airplanes flying at an altitude of 50 feet, strike the ground at varying angles depending upon their position in the zone of fire, which, as stated before, is greatly enlarged by the vibration of the plane. The average computed angle of incidence or strike (obtained by adding the angle of site to the angle of fall at intervals along the beaten zone, assigning to each interval a weight that depends upon the law of chance, and averaging the whole) is 2 degrees and 41 minutes. At this angle a bullet that just clears a sitting man's head will strike 50 feet in the rear of him. Thus each bullet forms a danger zone before it hits the ground, 50 feet long and a foot wide—the average width of a man —or 50 square feet in area. In Figure 1 we see that the zone of heavy fire is 3,853 yards long by an average of 171 feet wide, or an area of 1,990,620 square feet. From Figure 1 we can also compute, by applying the law of chance to the beaten zones, that 5,916 bullets strike in this area. We can then obtain the ratio of the danger area to the whole as follows:

$$\frac{5916 \times 50}{1{,}990{,}620} \text{ equals 14.9 per cent.}$$

To this must be added the ricochet effect of the bullets. There is no way of determining this in theory. From ordinary observations it is evident that in flat trajectories the angle of ricochet at which bullets leave the ground is

much steeper than the angle of incidence; but there are so many variable factors encountered in the ricochet of each bullet that there is no way of estimating the average ricochet angle. A fair estimate for a trajectory as flat as 2 degrees and 41 minutes is four times the angle of incidence. This would add one-fourth to the theoretical percentage of hits, making a total of 18.6 per cent. There is also a chance that one bullet will hit more than one man. This, however, is offset by the converse chance that one man will be hit by more than one bullet. The percentage of 18.6 then is a theoretical percentage of casualties that the attack plane machine guns can inflict upon troops on level, open ground under ideal conditions.

It is very unlikely, however, that such a percentage can be approached by attacking planes. The favorable conditions that we have assumed in our example are exceptional. And in the few instances where straight roads exist in flat open country it is more than likely that telegraph poles will be found along the side of the road. This would compel the attacking planes to fly at a greater height than 50 feet. A greater height of attack means a greater angle of incidence and a shorter danger space for the average bullet. Thus an attack delivered from an altitude of 100 feet would result in theoretical casualties of 12.4 per cent, when calculated for the same conditions.

Furthermore, it is impossible for a group of three planes to attack with the precision of movement required to obtain these percentages of casualties. Deviations from parallel flight whether up or down, or to the side, tend in the large majority of cases to decrease the average casualty percentages over a given length and width of attack. On the whole it seems improbable that there could ever be an instance in which fire from the air could be laid upon troops with the precision which we have assumed in this discussion. Besides, in actual combat every irregularity in the terrain, every curve of the roadway, every tree, will detract considerably from the casualties possible under ideal conditions. And, too, the speed of 145 miles per hour is too great for any but the slightest variations of direction during the brief attack. Once the attack is begun, the pilot can not hope to do much more than to continue it along the direction first taken.

How far attack planes can miss the mark at times is shown by the results of a demonstration attack made in 1928 at Fort Benning. Eighteen airplanes flying at altitudes of less than 500 feet attacked a simulated battalion. The battalion was in bivouac. It was 450 yards wide and contained 750 men, 70 animals, and 29 vehicles, represented by true-sized targets. The 18 attack planes fired a total of 2,891 rounds of machine gun bullets. No machine gun hits were found on any of the targets. It would seem from this practical test that the results which we may expect from airplanes in actual attack may be far indeed below the theoretical results.

Another factor that will frequently bring down the casualty percentage is the possibility of deployment over a greater width than 180 feet. In many attacks the element of surprise will be far less than it was in the attack above described, and there will be time for a wider deployment by the ground troops before they have to begin the

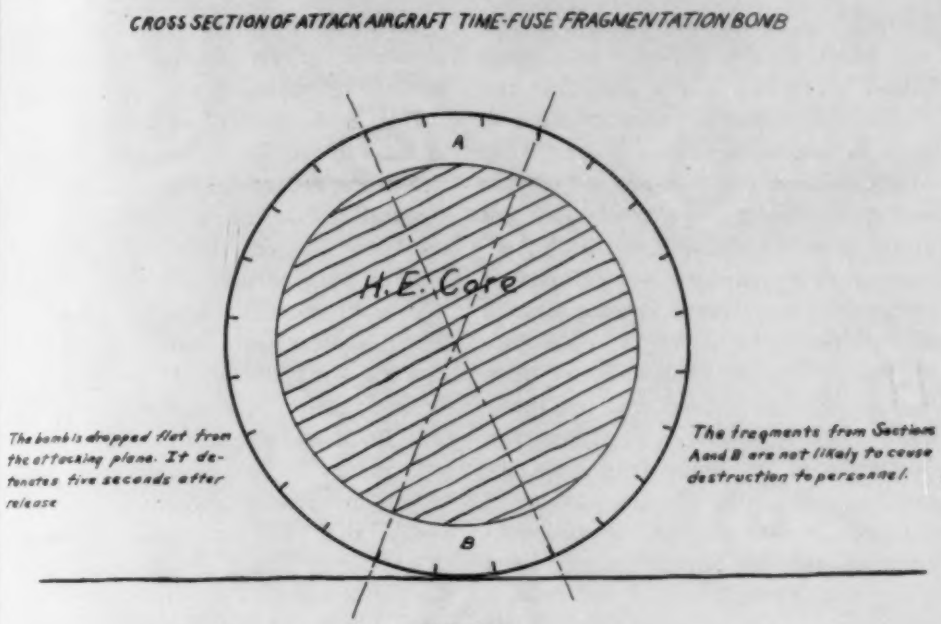
CROSS SECTION OF ATTACK AIRCRAFT TIME-FUSE FRAGMENTATION BOMB
A
H.E. Core
B
The bomb is dropped flat from the attacking plane. It detonates five seconds after release
The fragments from Section A and B are not likely to cause destruction to personnel.

FIGURE 2.

return fire. The theoretical casualty percentage when troops deploy over a width of 250 feet is 15.4 per cent for an attack from 50 feet altitude, and 10.25 per cent from 100 feet altitude.

The improbability of perfect working of the guns is still another point for consideration in estimating the fire power of attack aircraft. Present types of air-cooled, aircraft machine guns have been stepped up to a rate of 1,000-1,200 rounds per minute. But even the most carefully selected high grade ammunition does not always assure perfect functioning for 600 rounds of continuous fire. Functioning percentages are not at present available. It seems certain, however, that losses due to malfunctioning would reduce the number of bullets fired from the twelve guns of the attack planes during any given attack.

This whole discussion of casualty percentages, we must remember, is not an attempt to arrive at exact data but simply to estimate what airplanes can accomplish with machine gun fire. The evidence indicates that the machine gun fire alone will not by any means be overwhelming.

But there is also the bomb effect to consider.

There is no way of estimating the maximum effect of bombs, if they are successfully dropped, in numbers of killed and wounded. The latest type of bomb for use by attack aviation is a fragmentation bomb which breaks into 1,700 pieces, each large enough to inflict a severe wound. It is a cylindrical bomb, weighing about 30 pounds and consisting of an inner core of high explosive on which are mounted a number of partially segmented steel rings. As stated heretofore, these bombs have shown in test that every man at a distance of 20 meters, who is standing and presenting the full width of his body exposed to the bomb, would be hit. Unfortunately, there are no data

available as to the percentages of *low* hits which we can expect. In a bomb attack, as under heavy artillery fire, troops would take a prone position as soon as bombs began to drop. They would have a few seconds to hit the low spots, because the bomb does not go off immediately, and by taking advantage of every slight irregularity of the ground they would present a much smaller target to be hit than a standing man. The hit probability of these bombs can be figured out in many ways. Let us assume at first, however, that some of the bomb fragments are lost by going into the ground or at high angles into the air. A fair estimate of the useless fragments in a cylindrical bomb, dropped flat from a low altitude, is 25 per cent. (Figure 2.) Of the 1,700 this would leave 1,275 effective fragments. Now let us assume also that all of these effective fragments strike the ground within 100 yards radius of the point of detonation.[6] Then, the area of a circle whose radius is 300 feet is 283,000 square feet. There are 1,275 effective fragments. Hence, one fragment will strike in each 283,000/1,275 or 222 square feet. As the prone form of a man covers about five square feet, the average chance of a hit within this 100 yard circle is 5/222 or 2.26 per cent. In an actual attack there would be spots where the concentration is heavier and also gaps where no fragments would land. The effect of this bomb, however, analyzed with regard to men in the prone position and scattered over a considerable area of ground, indicates that no remarkable percentages of casualties would ensue.

As to the moral effect of the violent explosion of the bombs, there is no method by which it can be computed.

But first, before we consider the moral factors, let us see the possibilities in the return fire from the ground. Ground troops can be trained to keep up their fire at attacking planes as long as these targets are within range. We shall assume, however, that all firing ceases and that the infantry hits the low spots as soon as the bombs begin to drop. Under this assumption only the machine gun fire of the planes will reduce by its casualty effect the return fire from the ground. We saw above that the maximum casualty effect which could be expected from the aerial machine gun fire is 18.6 per cent. Then, if the average infantryman who is hit has fired his weapon during one-half of the 15 seconds that we assumed to be the average length of the fire from the ground, we must reduce the total ground fire by 18.6/2, or 9.3 per cent. This reduces the total number of bullets fired from 5,090 to 4,610. It should be remembered that all casualties, whether from machine gun fire or bombs, will not be serious. In *A Comparative Study of World War Casualties.* Colonel Harry L. Gilchrist, M. C., states that 60 per cent of those who received gunshot wounds were able to walk to the first aid station. The experience of battle proves that many of the less severely wounded will continue fighting after they are hit. As this factor can be approximated only very roughly, we have deemed it best to ignore it and to assume that all men who are hit are out of action. Then, if we divide the total

[6] From a study of the ordnance report on this bomb this seems to be a fair limit to set. The most distant target struck in the dropping of five bombs was about 145 yards from the detonation point. This, however, was exceptional. Nearly all of the targets struck were within 100 yards.

of 4,610 by 3, we have an average of 1,537 aimed shots which were fired in our described attack, at each of the attacking airplanes.

Actual firing by trained troops of the Infantry School at sleeve targets, towed by airplanes in vertical flight—targets that present a surface less than one-fourth the size of an attack plane fuselage—has resulted in an average of 9 per cent of hits out of shots fired with the rifle and automatic rifle, and 5 per cent of hits out of shots fired by machine guns. These results were made, of course, under peace-time firing conditions. They were made on targets flying between 90 and 100 miles an hour approaching the firing troops at 100 feet elevation above the ground. In spite of the greater speed which attacking airplanes have, they will provide a better target than the towed sleeve because they are several times as large and fly closer to the ground.

The forward half of the airplane fuselage contains nearly all of the vulnerable parts of an airplane. In the low, head-on flight employed in an attack, an A-3 plane presents a target of about 7.0 feet in height and 5.5 feet in width, or 38.5 square feet, exclusive of wings or landing gear. The towed target at low angles of fire presents its large end, and little or none of its length in the same manner that the airplane does. This, in the target used in the Infantry School firings mentioned above, has an area of 7.1 square feet. Hence, the same fire that gives percentages of 5.0 and 9.0 on a towed target should obtain much larger percentages on a target which is 38.5/7.1 or 5.4 times as large.[7]

The Coast Artillery, in towed target firing, makes a mathematical correction for this disparity in size. In Par. 27, TR 435-55 the method of arriving at the number of hits is outlined as follows:

> g. Targets.—The target to be towed by an airplane will be a sleeve target of the following shape and dimensions: truncated cone 10 feet long, 5 feet wide at the mouth, and 3.5 feet wide at the tail. . . . . .
>
> h. Hits.—When a target of the dimensions given in *g.* above is used the number of hits will be the total number of holes found in the sleeve multiplied by two. When a target of different dimensions is used the multiplying factor will bear the same relation to 'two' as the area of the target described in *g.* above bears to the area of the target used.

Applying this method of counting hits to the percentages of 9.0 and 5.0 per cent mentioned above, the hit percentage obtained would be multiplied by 5.7, or 51.3 per cent for the rifle and 28.5 for the machine gun, as the hit expectancy on actual targets.

There is still another element that should be considered. In the firings at Fort Benning the troops opened fire at a slant range of about 600 yards, while in the attack above described it has been assumed that fire was opened at about 1,000 yards slant range. Due to greater dispersion, of course, fewer hits are made at the longer ranges. The average slant range then for the firings at Fort Benning was about 350 yards. Under the

[7] The proportion is slightly different when the length element of the target and plane are considered. In low attack the end only of the approaching target is seen, except for a very brief time just before the target reaches a point over the firer's head. For the sake of simplicity the length element of both target and airplane are ignored in this discussion.

conditions assumed in our attack the average slant range would be approximately 550 yards. As accuracy is inversely proportional to range we must apply a further correction to the percentages of 51.3 and 28.5. This reduces the percentages to 32.7 and 18.1 for the rifle and machine gun fire respectively.

It can not be expected, to be sure, that combat conditions will permit the same degree of rifle and machine gun accuracy that is obtained in time of peace. Let us therefore divide these percentages by two, obtaining 16.3 and 9.0 per cent. We are then assuming that in combat a trained, experienced organization will make one-half as many hits upon a given aerial target at a given range as it will make in peace-time firing. Here again we are dealing with a highly variable factor; but to assume that trained troops lose half of their peace time fire accuracy in an actual attack is hardly too conservative an estimate.

On such a basis in the above described attack the hits on each airplane would average as follows: Machine gun hits—49;[8] Rifle and automatic rifle hits—162.[9] Total average hits on the forward half of the three attacking planes—211. The propeller, engine, controls, gas tanks, gas lines, and other important parts, will receive most of these hits. The pilot and the observer are protected to a great extent by these parts until the planes begin to pass over the ground troops. The bottom and sides of each plane are exposed only for a short time to fire from below and from the flanks. On the other hand, the pilot of a plane has to raise about half of his head above the fuselage in order to direct his plane; thus he is somewhat exposed to fire from the front. If the exposed part of a pilot's head be taken as 6.0 inches by 4.0 inches in size, or 1/6 of a square foot, the chance that a bullet will hit his head is 211/38.5 times 1/6, or 0.9—almost unity. This means that the probability that each pilot will be hit in the head once is nine times out of ten. This probability is not strictly accurate, however, as a part of the total hits will come from the sides and from below. What the ratio of these hits would be is difficult to estimate. A bullet from the flank or from underneath will have a greater chance of hitting the pilot or observer than one from the front because the targets are larger. Hence there is a strong probability that both would be wounded in any attack such as that which we have described.

If some bullets are almost sure to strike the pilot and observer, certainly an intense fire will riddle the entire plane. There is consequently a big chance that the plane will be damaged so badly that it will be forced down. The ordinary caliber .30 bullet penetrates one-quarter inch of steel at 400 yards range. The armor-piercing bullet goes through a like thickness of armorplate at the same range. We may well ask what damage these bullets do when they strike the complicated mechanism of an airplane engine or any other vital part of the plane.

In this regard we glean considerable information by examining the records of the World War. The official report

[8] 1537 (total average shots fired at each plane) times 1800/5090 (ratio of machine gun bullets to total fired), times 9.0 per cent, equals 49.

[9] 1537 (total average shots fired at each plane) times 3290/5090 (ratio of rifle bullets to total fired), times 16.3 per cent, equals 162.

of the British Royal Flying Corps on the Battle of the Somme, July 1 to November 17, 1916, states that British planes drove down 205 hostile airplanes out of commission. There was a similar number besides, shot down in flames or otherwise destroyed. That bullets in the engine caused many of these landings or crashes there can be no doubt. The German ace, von Richtofen, in the general account of his experiences during the first two years of the war, mentions ten different times when bullets struck the engines of airplanes and forced them down. One of Richtofen's comrades, Lubbert, actually was nicknamed "the Bullet Catcher" because of the frequency with which bullets put his planes out of the flying. Our own ace Rickenbacker, tells of a number of similar instances. The commonest disablement of airplanes, on the whole, seems to have been caused by the ignition of gasoline from punctured tanks. It seems probable, at the same time however, that many planes which fell in flames were also sufficiently damaged in the engine to have been forced down even if they had not caught fire.

Engines of present day attack planes, though more powerful are of much lighter construction than those used during the World War. An examination of the plans and specifications of the Curtis D-12 engine, used in the A-3 attack plane, can only result in the conclusion that the engine can not withstand the hail of aimed bullets from infantry. The duraluminum which forms most of the metal parts offers little resistance. Perpendicular hits of .30 caliber ball ammunition should penetrate the walls of this or any other modern military airplane engine at more than half the points on its surface. The A-3 engine exposes 2.7 square feet of penetrable surface to the front and considerably more to the side and bottom. Of the 211 bullets which we have seen possible to strike the front end of an airplane in an attack, a minimum of 2.7/38.5 times 211, or 15, have a chance of penetrating the engine. Those planes whose engines were damaged during the World War received the fire from one or two guns of opposing planes for no more than a second or two. In most instances they could hardly have been hit by more bullets than would be likely to strike them in the attack we have described. Although at present there are no complete experimental data on which to found such a statement, it is safe to say that an unarmored engine can not withstand the fire that infantry can deliver.

But there is an even more vulnerable portion of the attacking plane which we have not yet considered. The occupants of the plane may be wounded and carry on. The engine may be riddled by a score of hits and yet still work well enough for the plane to limp to its home airdrome. Engines of World War types have been struck by bullets which failed to put them entirely out of commission. Due to the high altitude of flight the pilot was sometimes able to reach his home field. In the present instance the low altitude would prevent any escape of this kind. But what will happen if bullets from the ground strike the bombs which the attacking planes carry? Ordnance tests have shown that .30 caliber armor-piercing ammunition at close ranges will detonate these fragmentation bombs. True, the detonation is low order, only heavy enough to break the bomb into four

or five large pieces instead of the 1700 fragments that result from a high order explosion. But this should be sufficient to break a wing and wreck a plane even if the detonation of the other bombs did not result.

This whole question of attack plane vulnerability needs further investigation. There are little or no data on the subject now, but the Department of Experiment and The Infantry Board have recently recommended thorough research upon the whole subject. Such an investigation will bring out in a definite manner the degree of risk run by planes in an attack and the lines along which Infantry can best develop its anti-aircraft in the future.

Long before this point in our discussion the thought of armored planes doubtless has suggested itself to the reader. Armor has been tried. Planes well protected against .30 caliber ammunition have been built and flown. But they have proved so cumbersome and unwieldy as to be almost dangerous to fly. In the words of one air corps officer, they "handled like a wash tub propelled by a paddle." Then, too, the .30 caliber is by no means a limiting size for the infantry anti-aircraft weapon. Some fair results have been made against towed targets using the .50 caliber machine gun. There are already developments of an automatic 37 mm. gun. Armor against either of these weapons would be out of the question because of its prohibitive weight. And on the whole, we may consider the armored plane as impracticable. At least it has been abandoned for the present.

From the discussion thus far it seems conclusive that infantry has the power to bring down, if not every airplane which attacks, then a big proportion of them, although in so doing it may suffer casualties of its own which are not slight. In battle, however, this is likely to be accomplished only by infantry which has been trained to fight back to the best of its ability.

The opinion is still held by many, particularly in the air branches of the world's armies, that infantry will not fight back. Even as careful a student of aerial war as the late Maj. William C. Sherman, A. C., believed this to be true. In his book, *Air Warfare*, published in 1926, he discussed the subject at length. He first brought out the point that the moral effect of air attacks was very great on ground troops during the World War. He consequently hestitated to believe that it would be much less in future wars, although at the same time he admitted very fairly that the examples of the World War in this regard are not criteria of present or future conditions. Such attacks were then new and unexpected and the power of infantry against them was not realized. These "strafing" incidents in which a spectacular opponent attacked troops untrained in anti-aircraft fire are a chief basis for the belief in the devastating effect of aerial attack, now so widely held. But today the noise and speed of aircraft are familiar to all. The trained soldier knows that his winged enemy is dangerous—but also that he is vulnerable to determined resistance.

With regard to the actual moral effect of air attack upon the individual soldier, we have shown that the machine gun fire and the bombing, though heavy, are not likely to be devastating in their casualty effect. Those who have seen trained infantry retain its morale while advancing with artillery

shells bursting in its ranks, or with machine gun fire striking down entire squads, will have no fear as to the infantry soldier's ability to place accurate fire on aircraft which is firing at him. The infantryman's most trying ordeal is to be fired at without being able to see who is firing at him, and thus to be without a target at which to return the fire. In combat he encounters this condition a large part of the time, and if he is well trained his morale endures. An airplane attack, in sharp contrast, presents to the soldier a large and clear, if fast-moving, target; each man knows that it is possible for him alone to bring down the noisy assemblage of fabric, steel, and wood, which comes speeding toward him. Trained men will have learned that they can riddle towed targets, and will have confidence of their ability against attacking airplanes. And after the first aerial attack, when some or all of the planes have been reduced to wreckage, the anti-aircraft morale of infantry will be so raised that the threat of the attack airplane will be small indeed in the mind of the infantry soldier.

And what, it is pertinent to inquire, will be the morale of the gunner and the pilot of an attack plane who may feel certain that some two hundred bullets from the ground will penetrate the forward half of the fuselage of the craft in which they sit?

To return to the description of combat between the ground and the air, it will be remembered that the fight was one in which conditions favored the attacking planes from both the physical and moral aspects, due to the abnormal nature of the terrain in which it was assumed that the attack was made. Attacks on ground troops in any but such "made-to-order" locations will lose much of their surprise and fire effectiveness. On the other hand, normal terrain may lessen, though to a slighter degree, the volume of fire possible from ground troops.

Another phase which must be considered is the effect of air attack upon animals. The most vulnerable element of an infantry column as it is now organized is the animal drawn wagon train. The effect of aircraft fire upon these trains doubtless will be great, and similar to the destruction caused by well directed artillery fire. Casualties will be large; a scene of utmost confusion will undoubtedly follow the machine gun and bomb attack. Any discussion of this point leads to a strong argument for the definite motorization of animal-drawn units.

There is also the possible use of gas by hostile planes to be taken into account. This is a more serious problem to infantry than the use of bombs and bullets against them. Although gas as a weapon is neither countenanced nor planned by our government, defense against it of necessity must be studied thoroughly. No complete protection for infantry has yet been developed. To be sure, hostile air forces that fully realize the sting that infantry holds for them will keep at least a half mile away. Further, it seems likely that additions which could be made to the fire power of ground troops, would hold gas planes at such a distance that their lethal element could not be employed with effect. Then, too, we must not forget that our own aviation normally will furnish protection against gas-laying planes. In like manner also the employment

of smoke-laying planes by an enemy will be limited.

Aside from gas attacks, it appears certain that infantry can meet attacks from the air with success. Even if the fire power of infantry should prove to be only a fraction of what we have indicated, the losses that infantry can cause to aircraft that come close enough to inflict real damage will be considered too costly for any but the most desperate missions of delay and harassment. The anti-aircraft protection of infantry transportation is the major problem to be solved, and motorization looms as the best answer.

Infantry of today should and does respect the threat of aerial attacks, although it is confident of its ability to protect itself. The future of infantry vs. the airplane must be, in the main, conjecture. There is no reason to believe that the general law will not hold good which has governed the growth of warfare since primitive man cast a stone with murderous intent. As fast as offensive measures forge ahead, defensive means catch up and add to themselves elements of the offense, which is in turn overtaken and passed. Insofar as direct combat between the two is concerned, present tendencies of armament lead to the belief that ground troops are moving rapidly forward to meet the forces of the air.

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## Principle versus Practice

*From the Note Book of "General Experience"*

A study of military history would lead to the conclusion that a principle of war is "a policy everyone agrees on, and no one follows." A glaring example of the breach between principle and practice is afforded by the World War.

*Principle:* "Once the decisive theatre has been selected it must be regarded as such, and all other theatres must be ruthlessly treated as secondary, and made to do the best they can with what is given them." Field-Marshal Sir. W. Robertson.

*Practice:* The theatre of war in France was constantly weakened of possible reinforcements by a continual succession of "side-shows" that ranged from the ill-fate Dardanelles campaign to the Archangel expedition.

# John Brown's Raid - September, 1777

## In the Course of Which the Massachusetts Militia Applied Some Principles of War

CAPT. WALTER B. STURTEVANT, 104th Infantry

ON a sultry August day in 1777 a paunchy, heavy-jowled, general officer of the Continental line, accompanied by a dusty staff, rode slowly into the Vermont hamlet of Manchester. Eight days earlier this little group had set out from the headquarters of the American Army at Germantown, Pennsylvania. By traveling night and day they had reported to the commanding general of the Northern Department on July 29. It was then that their leader had been shown the following letter:

"I have directed General Lincoln to repair to you as speedily as the state of his health, which is not very perfect, will permit him. This gentleman has always supported the character of a judicious, brave, active office, and as he is exceedingly popular and much respected in the State of Massachusetts, to which he belongs, he will have a degree of influence over the militia which cannot fail of being very advantageous. I have destined him more particularly to the command of them, and I promise myself it will have a powerful tendency to make them turn out with more cheerfulness, and to inspire them with perseverance to remain in the field, and fortitude and spirit to do their duty while on it. The confidence they have in him will certainly go a great way towards producing these desirable ends."

To General Schuyler

I am, etc.,

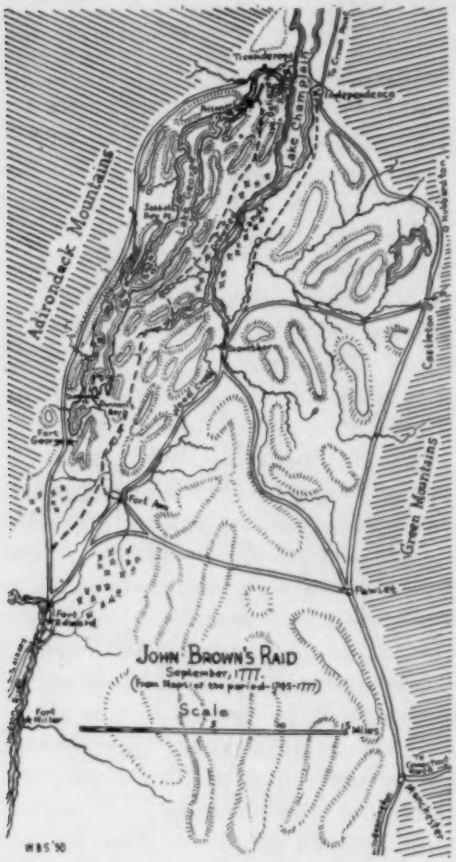
George Washington."

The situation of the Northern Army was critical. Ticonderoga had been abandoned to Burgoyne the month before. The defeat of its retreating garrison at Hubbardton, the destruction of the Continental stores at Skenesboro, and the rapid advance of the British to Fort Ann and Fort Edward had spread consternation over the country. New England had no confidence in the York State patroon, Philip Schuyler. In view of the cowardly flight of the militia regiments on July 7, and the panic created in western Massachusetts by these fugitives on their return to their homes, Schuyler placed no faith in the fighting ability of troops from the Bay State. This mutual distrust, combined with sectional jealousies, made the assembly of a united force doubly difficult. On the other hand the army facing Burgoyne drew a large part of its supplies and munitions from the Connecticut Valley, which source would be menaced should enemy raids penetrate the Green Mountains or the Berkshires. The invaders had repaired the bridges and removed the obstructions placed by the Americans across the route to the Hudson. Their further advance would necessitate Schuyler's retreating from the mouth of the Battenkill to Saratoga or even further south, leaving western New England open to attack.

With the arrival of Benjamin Lincoln, Schuyler found a solution for one of his problems. He immediately ordered the stout Yankee to take command of the militia assembled at Manchester, receive others who might join, use the best efforts with the New Eng-

land legislatures to order out additional troops, organize and train a combat force, and act as circumstances might dictate on the British left flank and rear.

500 Vermonters under the veteran Seth Warner formed the nucleus of Lincoln's force. These were seasoned


Adirondack Mountains
Lake Champlain
Ticonderoga
Independence
Castleton
Green Mountains
Fort George
Fort
Fort
Fort

citadel, and posted armed boats to cover the landings, fords, and bridges which gave access to the fortress.

Brigadier General Powell commanded this base. The regiment of Prince Frederick (Brunswickers) garrisoned Fort Independence. These heavy German foot soldiers, numbering four hundred and forty-eight rank and file, had occupied this position since its capture in July. On the western side of the lake were stationed the four hundred and sixty-two rank and file of the 53rd British foot, three hundred of whom occupied the stone fort, with the remainder scattered in small detachments through the outer posts. This regiment had suffered severely from sickness and patrol encounters during the advance, and had but recently been sent back from Fort Edward for rest and reorganization. With them in the main defenses were some Canadian irregulars, a small detachment of artillery, a few Tories, batteaux men, artisons, and sutlers. The armed sloops of the Lake Champlain and Lake George flotillas were manned by a handful of naval officers and sailors. The entire force did not number over 2,000 effectives, of whom less than 1,000 were regulars. It was not a sufficient garrison to man all of the extensive works, but was adequate to defend the massive walls of the old French Fort and the naturally strong position on the hill to the east of the lake. Lincoln was informed that Powell had broken his force up into small and scattered detachments. No scouting was done beyond the fortified lines.

Two routes led forward to the British army. That up Lake Champlain, over which Burgoyne had advanced, was being abandoned in favor of the shorter and better protected line of communication by way of Lake George and the old military road to Fort Edward. There were still some boats and a small detachment at Skenesboro, but the bulk of the Champlain flotilla had been withdrawn to the base and was slowly being dragged over the rapids to the upper lake. At Diamond Island, twenty-five miles south of Ticonderoga on Lake George, an advanced base was being established. Here was the southern anchorage of the supply boats. Three miles beyond this was Fort George, guarding the landing at the southern end of the lake and the road to the Hudson. Two companies occupied this island, while the fort was garrisoned by a small detachment. The road was covered by patrols sent out from Fort Edward.

The British rear guard was at Fort Edward. Burgoyne, with the main body, was eight miles away at Fort Miller. There was every evidence that the invaders would shortly cross the Hudson and move on Albany. With the beginning of this movement would come the opportunity to sever the connection between the English General and his base, fifty miles to the north.

Lincoln now had some 1,500 trained militia, not counting the New Hampshire men under Stark who were still in the neighborhood of Bennington, overcome and inactive by reason of their recent victory. The Northern Army, 6,000 strong, was intrenched at the mouth of the Mohawk. Horatio Gates had replaced Schuyler in command. New troops were arriving daily. Gates, whose regulars were now equal in numbers to those commanded by Burgoyne, and whose total force outnumbered the enemy, notified the Massachusetts General that he intend-

ed to advance and oppose any further move by the British. Active cooperation was demanded.

Four lines of action were open to Lincoln. He could hold his troops where they were. This would protect the New England settlements but would in no way give active support to the department commander. He could march his forces to join Gates. This would mean that the gateway to the Connecticut Valley would be defended only by Stark, who might at any time return home with his troops, and who was not inclined or required to act with the other Continental commanders. He could sever the British communications at Fort Ann and Fort George. In event of the retreat of the enemy, or in event of their being strongly reinforced from the north his troops would be in a bad situation. He could attack the British base at Ticonderoga, and damage the shipping on the lakes with a part of his force, holding the remainder for a defense against enemy raids and a reserve in case of defeat. This was the plan selected. In Pittsfield was a militia officer noted for his thoroughness and daring, to whom Lincoln dispatched an express requesting that he report with his regiment for active duty.

John Brown, Colonel of the 3rd Berkshire Regiment, had crowded much experience into the thirty-three years of his life. Born in the little hill town of Sandisfield on October 19, 1744, he had served under Abercrombie and Amherst during the French and Indian wars. He had graduated from Yale in the class of 1771. Reading law under Oliver Arnold of Providence, he had doubtless stored up, with the legal knowledge imparted by this solicitor some of his remarks and opinions concerning his cousin, Benedict. After service as the King's Attorney at Caghuawaga, New York, he had moved to Pittsfield in 1773. The following year he was elected delegate to the Berkshire County Convention, served on the committee which drafted the non-intercourse resolutions adopted by that body, and became the confidential correspondent from Berkshire to the Massachusetts Committee of Public Safety. Elected to the Provincial Congress of 1775, he was placed in charge of the mission which endeavored to enlist the sympathy and aid of Canada for the coming hostilities. From Montreal he wrote to the Massachusetts leaders on March 29, 1775:

"One thing I must mention, to be kept as a profound secret. The fort at Ticonderoga must be seized as soon as possible, should hostilities be commenced by the king's troops. The people on New Hampshire Grants have engaged to do this business and in my opinion they are the most proper persons for this job. This will effectually curb this Province (Canada) and all troops that may be sent here."

As lieutenant of the Pittsfield train band he had entered Ticonderoga with Ethan Allen on May 10, 1775, and was selected by Allen and Arnold to bear to the Continental Congress the dispatches announcing the capture of the fortress.

During 1776 Brown served with the army in Canada as Captain, Major, and finally as Lieutenant Colonel of Eaton's regiment. His activities here included the leadership of the raid which captured Fort Chamblee, and with it eighty-nine officers and men, six tons of powder, arms, ammunition and stores. The command of the first Continental flotilla on Lake Champlain, his direction of the scouts and



ing made practically impossible by the Brown's column marched north on

spies of the army, and his assistance at the capture of the important post of St. Johns, with other exploits brought him a citation from General Schuyler to the effect that, "Major Brown has during the past year done extraordinary services."

During this campaign he had aroused the enmity of Benedict Arnold. Certain of the activities of this leader had aroused Brown's suspicions. At one time he even suspected him of planning to desert to the enemy. Arnold accused Brown of misappropriating a portion of the plunder from St. Johns. The feud gathered strength during the retreat from Canada, and during the reorganization of the army at Albany. Brown demanded a court martial, which was refused as being uncalled for by his record. He then published a statement regarding Arnold, which read:

"Money is this man's God, and to get enough of it he would sell his Country."

Arnold threatened to kick the Berkshire officer on sight. Brown accepted the challenge, confronted the future traitor in his own mess, dared him to make his words good, and upon Arnold's shamefaced silence and inaction branded him a "dirty scoundrel" to his face.

After his resignation from the Continental army, in March, 1777, and his return to Pittsfield, Brown had been elected to the command of the 3rd Berkshire, and had been again delegated to the Massachusetts General Court. At Bennington, fought while he was in Boston, the troops which he had trained served with credit under Lieutenant Colonel David Rossiter. Brave, active, well schooled, thoroughly familiar with the country, and beloved by his men, John Brown was selected by General Lincoln as the ideal commander to carry out his project.

After sending his summons to Pittsfield, Lincoln moved his headquarters from Manchester fifteen miles northwest to Pawlet. Upon his advance the British detachment at Skenesboro burned such stores as were still at the mouth of Wood Creek and withdrew up the lake. The alarm list of the 3rd Berkshire left Pittsfield on September 6. They were for the most part veterans of previous campaigns, five hundred carefully picked men, fully equipped, provisioned for a month's service, and the majority mounted. One company was led by John Strong, like the regimental commander a lawyer and a Yale graduate. Another Captain was Ezra Whittelsey, ancestor of the gallant major whose name is connected with the "Lost Battalion" of 1918. Their arrival at Pawlet brought Lincoln's command up to some 2,000 effectives including, besides the Berkshire troops, the 4th Hampshire regiment under Colonel B. Ruggles Woodbridge and the 4th Essex under Colonel Samuel Johnson—all from Massachusetts—Seth Warner's Vermont Rangers, and some detachments from other militia organizations.

The country between Pawlet and Ticonderoga was wilderness. British patrol boats forbade the use of the lake, and to the east of Champlain was only the single rough wood road through Hubbardton over which the retreat had been made in July. Indian trails, long disused, skirted both shores of the waterway, but could not be traveled by any large body of men. In addition to the movement of his entire force be-

ing made practically impossible by the available roads, any attempt to this end would be certain of discovery. Transportation of artillery was out of the question.

Lincoln's plan called for a quick movement by small detachments, a coordinated surprise attack on the British base, and a hasty withdrawal after maximum damage had been done. Brown was to attack Ticonderoga, capture or burn the supplies, and retire by way of Lake George to Fort Ann destroying the enemy installations in his path. Johnson was to threaten Fort Independence, prevent its garrison from combining with the troops to the west of Lake Champlain, render Brown such assistance as he could, and withdraw to Hubbardton. Woodbridge was to occupy Skenesboro and Fort Ann, threaten the military road from Fort George to Fort Edward, and divert the attention of any forces which might otherwise cut off the retreat of the Berkshire soldiers. Each of these three commanded about 500 men. Lincoln himself, too heavy for rapid marches through the wilderness, was to remain at Pawlet with the balance of his force, keeping contact with the army under Gates and prepared to render such assistance as might be needed by any of his subordinates. Without being separated from the control of his general, Warner was moved up the Hubbardton road to support Johnson and cover his withdrawal. Definite instructions were given that siege operations were not to be undertaken and that all columns must return to Pawlet as rapidly as possible in condition to undertake other missions. Daybreak of September 18 was set as the zero hour for the attack on the British base.

Brown's column marched north on September 13, the very day that Burgoyne with the main British army crossed the Hudson. They moved quickly to Skenesboro, crossed Wood Creek and South Bay without being discovered, and entered the forest on the half forgotten trail which ran through the drowned lands and over the mountains between Lake Champlain and Lake George. For five days they pushed on, wading swamps, breaking through windfalls, twisting and turning among the thickets of laurel and hemlock along the Indian path. Nine miles a day was their average speed, although the first twenty miles of the forty-five mile journey to their objective was over roads considered good in those days. One officer later wrote, "We marched through the woods where man never marched before—." This same man recorded his opinion of Colonel John Brown as, "a fine officer as ever I saw—good courage and good conduct."

By ordering a forced march on the night of September 17, Brown arrived on the hills above the Lake George portage on time. Below him at the landing were some 50 boats. At anchor was an armed sloop, a sleepy sailor on guard near her tiller. Piles of supplies were beside the road which led downstream to the mills and the fort, waiting for the snoring batteauxmen to wake and stow them for their journey to Burgoyne. The attack of the Berkshire regiment was hastily organized under cover of the rising mists. One company was probably designated to rush the guards and the boatmen, another must have been detailed to the capture of the sloop, and a strong detachment was doubtless posted to com-



he would be in serious danger. No matter what Powell's faults may have been

under cover of darkness that communication was established between the two

mand the road, preventing any interruption from the garrison at the saw mills. The Colonel's brief report of this engagement gives no details except as to the results of his preparations.

The initial rush of the Americans was successful. The sloop was captured before the startled crew could fire a shot. The guards and batteauxmen made but little resistance. Brown hurried off Captain Allen's company to seize the battery on Mount Defiance, by the construction of which Burgoyne had forced St. Clair to abandon the entire fortress two months before. Another company was sent down the road to the mills. A third was detailed to secure the prisoners, land the guns of the captured guard boat, and prevent any news of the attack being sent to the British posts at the head of the lake. The remainder of the troops were marched immediately toward the Old French Lines.

Allen accomplished his mission. The attack on the saw mills ran into more opposition. Here Lieutenant Lord of the 53rd Foot was in command. With a few men he occupied the block house, defending his post until the threat of one of the captured cannon trained against its log walls made further resistance useless. The efforts of this subaltern had not delayed the main attack, which easily passed over the thinly manned breastworks of the lines, surrounded and captured the Jersey redoubt, and was only checked at the stone walls of the citadel.

Before noon the Berkshire regiment was in possession of the entire fortress on the western side of Lake Champlain with the exception of the French stone fort, the Grenadiers' battery, and the redoubt which commanded the bridge to Mount Independence. They had captured 293 prisoners, including 2 captains, 9 subalterns, 2 commissaries, 143 British regulars, 119 Canadians, and 18 artificers, had taken 200 boats counting the sloop and 17 armed gun boats, seized several cannon, 300 stands of arms, and a quantity of ammunition and supplies. They had also recovered the American flag which had been left flying over the works at the withdrawal of the garrison on July 5. All this had been accomplished with a loss of but four killed and five wounded.

Colonel Brown sent a flag to the citadel, "demanding the surrender of Ty: and Mount Independence in strong and preemptory terms," to quote from his report. This was pure bluff. His troops were not equipped for siege operations, even had his orders permitted; they were short of provisions, no quantity of food stuffs had been captured; and the French fort, bravely manned, was capable of holding out for a considerable time against the limited number of light guns that could be brought against it. Furthermore, Lincoln's instructions called for speed, and stressed the necessity of bringing back the raiding force in condition to undertake further combat missions. Brown had received no news of the success or failure of Johnson's attack on the eastern side of the lake. The garrison had received no aid from the Germans, and he could see and hear fighting about Mount Independence. He had learned that Sir John Johnson with considerable reenforcements from Canada was hourly expected. If, as was possible, this force included all of St. Ledger's expedition which had recently been driven from the upper Mohawk valley,



on the way from the north, but they Warner's regiment, sent up by Lin-

he would be in serious danger. No matter what Powell's faults may have been in overextending his force, and in neglecting his service of security, he was no coward. The American colonel's report to Lincoln, setting forth the successes of the morning, closes with,

"'This minute received Gen'l Powal's answer to my demand in these words, 'The garrison intrusted to my charge I shall defend to the last.' Indeed I have little hopes of putting him to the necessity of giving it up unless by the force under Colonel Johnson."

On the eastern front things had not been going so well. The 4th Essex regiment, having the easier route had left Pawlet a day after the Berkshire troops, and had arrived near Mount Independence Sept. 16. Johnson had concealed his men in the forest at some distance from the fort, stationing patrols in ambush to prevent discovery and to obtain information of the defenses. While Brown's regiment was making the last forced march these scouts watched the drill of the heavy German infantry, noted the sentry posts and weak points of the enemy's works, and were witnesses to the flogging of some offender against the regulations of the garrison. Either because the wind carried away the noise of the opening attack, or because of some difficulty in getting into position, the assault on Independence was not launched until broad daylight. By this time the garrison had been warned of their danger, and while the Americans drew the fire of the post, and effectively prevented any troops being sent across the bridge of boats to Powell, they could not gain a foothold on the walls. The British flotilla on Lake Champlain prevented any messages from reaching Colonel Brown, and it was not until some of Johnson's men swam the lake under cover of darkness that communication was established between the two columns.

The American commanders determined to see what could be accomplished by a further harassing of the enemy's base. Colonel Brown armed and organized 100 prisoners who had been released by his first attack, sent patrols up the lake to watch for Sir John Johnson, established a guard at the Lake George landing to receive such messengers and convoys as might come from Burgoyne, and proceeded to make life miserable for the garrison of the stone fort. Johnson continued to worry the regiment of Prince Frederick. The captured cannon were placed in battery, some on Mount Defiance, others near the citadel, and one or two covering the bridge of boats. The threat of this artillery forced the British boats to draw off, enabling the Americans to transfer troops and supplies from one side of the lake to the other.

Frequent raids were made up the walls of the forts, snipers were posted to pick off the unwary among the defenders, while a desultory cannonade was kept up both night and day, the chief result of which was to cause a great burning of powder by the garrison, and considerable amusement to the English naval officers who watched proceedings from a safe distance through their glasses. During the four days which followed a hundred additional prisoners were taken, these being for the most part small convoys which arrived from Fort George and from Canada. It seems strange that none of the British navy personnel attempted to carry information of this raid either to the posts on Lake George or to the reenforcements known to be



mainder and all the boats and supplies

The original plans for this raid had

on the way from the north, but they seem to have been satisfied to withdraw far enough to the south to be out of cannon shot, and there await the outcome of the siege.

The German troops to the east of the lake were nervous. Unused to the country, cut off their supports, surrounded by the wilderness, and ignorant of the exact size of the force attacking them, the slightest threat by Johnson's men was enough to send their volleys thundering through the forest. On the night of September 21 a wandering, hungry cow blundered into some crackling bushes on the slope of Mount Independence. Alarmed by the noise, the garrison stood to, and directed a heavy fire from cannon and small arms on all sides. Such Continental patrols as were in the neighborhood immediately drew off to a safe distance, admiring the show and wondering at its cause. The fireworks continued until daybreak without damaging even the cow.

The day after this episode the siege was raised. On September 17 General Gates requested Lincoln to join the northern army as soon as the raiders were in safety. Two days later he forwarded orders for the immediate march of the entire force at Pawlet. Doubtless the Massachusetts general had sent some word to his detachments at Ticonderoga as soon as he received the first express from the department commander, but in any event, early on the twenty-second the Essex regiment with some 70 men from Brown's command, the wounded, released American captives, all of the prisoners, and such of the supplies and munitions as could be carried over the forest road, set out for Hubbardton. A detachment from Warner's regiment, sent up by Lincoln for the purpose, undertook to collect the cattle and horses of the Ticonderoga garrison which had been turned loose in the woods, at the same time creating enough disturbance around Fort Independence to prevent any sortie. This mission accomplished, they returned to the settlements.

Colonel Brown followed out his original orders. After doing all possible damage to the outworks which he had captured, destroying such supplies as had not been convoyed by Johnson, and burning all boats not required for his own men, he embarked the remaining 420 raiders on the captured sloop, 2 gunboats and 17 smaller craft, and sailed from the northern end of Lake George at four in the afternoon. By pushing on during the night he hoped to reach the British post at Diamond Island at daybreak. Head winds and rough water forced the little flotilla to shore behind Sabbath Day Point, where it remained beached during the whole of the following day. During this interval a sutler by the name of Ferry was captured. As this man was known personally to many of the Berkshire men, and was considered harmless by them, he was brought into camp, placed on parole, and given more or less freedom. Ferry broke his word, evaded the guards, obtained a canoe, and gave the garrison at Diamond Island their first warning of the movements of Brown's command.

When Burgoyne crossed the Hudson on September 13, he detached two companies of the 47th British regulars under Captain Aubrey to protect his advanced base on Lake George. Aubrey stationed about thirty men at Fort George, and took post with the re-

mainder and all the boats and supplies on the island, three miles down the lake. For the past week this garrison had been digging entrenchments, mounting guns, and making themselves as secure as their numbers and the natural strength of the post permitted. As the American flotilla advanced to the attack at nine o'clock on the morning of the twenty-fourth, the king's troops were fully prepared to receive them.

The boats of the attackers were arranged in a great crescent, with the sloop in the center and the gun boats on either point. Brown hoped that this formation might either outflank the defenders or discover some weakness on which he might concentrate to force a landing. In this he was disappointed. The British artillery outranged the swivels and light cannon of the boats. The fire of the Colonial marksmen could not reach the redcoats behind their earthworks. Every move of the Berkshire men was under observation from the shore, and by moving his men from place to place under cover Aubrey was able to parry every thrust attempted by the American commander. After a hot fight which lasted for about two hours, the sloop mounting the heaviest guns in the fleet, was hit between wind and water and forced out of action. Brown then drew off, landed in Dunham's Bay, on the eastern side of the lake, burned the boats, and led his men over the Indian trail to Fort Ann, Aubrey followed closely until the American rear guard disappeared in the forest. He succeeded, much to his joy, in recapturing the gunboat which was covering the destruction of the remainder of the flotilla.

The original plans for this raid had provided that Brown and Woodbridge should join forces at or near Fort Ann. Finding no one there, and learning that all of General Lincoln's command was ordered to Bemis Heights, the Berkshire colonel marched to Skenesboro, from which place he forwarded his report. This begins:

"Skenesboro, Friday, 11 o'clock A. M.,
September 26, 1777

Dear Sir:

"I this minute arrived at this place by way of Fort Ann, was induced to take this route on Ac't of my ignorance of the situation of every part of the Continental Army.

(Here follows a concise account of the happenings since the twenty-second)

"General Burgoyne has about 4 weeks Provision with his army and *no more*, he is determined to cut his road through to Albany at all events, for this I have the best authority, still I think him under a small mistake."

For the third time in his life, at least, John Brown was proved to be a true prophet. Burgoyne was under "a small mistake" which was to cost him his army, and England her American colonies.

Although the French Fort at Ticonderoga, the works on Mount Independence, and the garrison on Diamond Island had resisted the Americans, John Brown's raid accomplished its mission. The destruction of the batteaux and gunboats on Lake George prevented any large shipment of supplies to the British army, and made impossible the withdrawal of Burgoyne's command, even if it could fight its way back to the shores of the lakes. The arms and munitions brought back by Johnson had been added to the limited Continental supply. The morale of

New England had been strengthened, not only by the audacity of the plan, conceived by a Yankee general and carried out by Massachusetts militia, but also by the return of 100 American prisoners, and by the fact that the captured British were marched the width of the Bay State to be interned at Old Newgate Prison on the hills above Simsbury, Connecticut. The news came to Burgoyne shortly after his check at Freeman's Farm. While his wearied troops were entrenching their position they heard a great cheering from the American camp, followed shortly by a salute of thirteen guns. A few days later a prisoner, released expressly for the purpose by Gates' order brought to the harassed and hungry invaders a full account of the activities in their rear. From that time on the Indians, Canadians and Tories deserted in greater numbers, fearing lest all chance of escape should be cut off, and dreading their fate in event of a capitulation.

Although Colonel Brown's exploit was mentioned in Washington's order of the day published to the army on October 28, 1777, and the reports of both Brown and the British commanders on the actions of September 18 and 24 have been preserved, entering into much more detail than many records of this period, the Pittsfield soldier has never received full credit for his leadership. English historians are more kindly than our own, who call him a little known officer. This neglect is due partly to the fact that the raid was only an incident in the Saratoga campaign, partly because it was conceived by Lincoln to whom the jealous Gates was fearful of giving credit, partly because it was executed by militia commanded by a sworn enemy of the then popular Arnold, and largely because on his thirty-sixth birthday October 19, 1780, while the man whose God was money was accepting British gold, Colonel John Brown was killed while leading the 3d Berkshire regiment in battle at Stone Arabia.

## Old Copies of Infantry Journal Wanted

THE Infantry Association has run out of extra copies of the INFANTRY JOURNALS for January and June, 1929 and January and February, 1930. It will be glad to receive copies from officers who do not care to keep them in their files. Of course, it will reimburse officers for the cost of sending in copies.

# The Psychological Effect of Infantry Weapons

CAPT. EDWARD M. CONNORS, 101st Infantry, Mass. N. G.

PERHAPS it is not fitting to entertain thoughts of destructiveness of weapons, since we are not certain as to whether the subject of war is permitted beyond the elements of defense. I should not like to arouse and irritate my frail and mistaken brothers and, perhaps, sisters, too, whose sole ambition is to keep peace among nations and to stifle hatred of one another among men; but I am going to the next war and hope to meet you there. What the implements of destruction will be I don't know and don't care. I doubt if they will change very much during our short stay on earth.

Consider the technique of arms; for example, the arms of the Infantry Service. Did you ever consider the psychological effect of these weapons? Since all weapons have a psychological effect either upon the service in general, or upon the personnel, it is well to entertain the subject. Briefly, I present it for no other reason than to stir your mind.

The question arises as to just how far we should extend our instruction to the individual concerned, in the use and destructive powers of these different death-dealing weapons. Should we teach merely the nomenclature, mechanism, and tactical dispositions, making sure that the student knows thoroughly the operation of the weapon, the art of defense concerning it, and then rest; or should we in the same breath constantly emphasize its destructive potency? What is the impression on the mind of the student who knows the enemy will use a similiar weapon with equal havoc and demoralizing power? If a man knows the terror of his weapon equally as well as its mechanical functions, will he not be afraid of the same of similar weapons of death in the hands of an enemy?

Let's turn to that weapon that dangles by the side of every dough-boy when entering the field, the bayonet, the weapon held so fondly in the heart of the Englishman. It used to seem that every time a General came around something in the nature of a show or demonstration was necessary. Almost invariably the bayonets were brought out and the drill field was turned into a gymnasium; for physical exercise, some would tell you. In my opinion, it was not to teach any tactical method, because who wants either in attack or defense to chase an enemy in order to stab him to death when he can easily stand off and shoot him. I speak now as an American; perhaps my English brothers from whom we inherited the bayonet drill will take exceptions.

Every time a student jabs a dummy and the bayonet blade goes far and deep into it, what are his thoughts when the saw-dust rolls out. There are times when he cannot withdraw it. He is told the same results take place when it is plunged into the





are deadly. The chief thing for our confident in his weapon as the great-

human body. The instructor points out several remedies and as a last resort to discharge the piece. What is the psychological effect? Is there any?

I'll bet he hopes that in actual combat if he is killed it will never be by one of these instruments of torture. How many men who taught the bayonet during the war became actually afraid of it, so afraid that it was almost impossible to drag them to the front. How many teachers and other bayonet specialists in other armies; as well as our own, turned yellow dog? It was simply because they dreaded so much to meet an enemy who might run them through with one of those blades. I knew some in the last war; perhaps you recall a few. Fortunately they were in the minority. An intense reaction to the use of the bayonet had taken place in these men. If they had not known the enemy were armed with these weapons, I believe their bravery would have been unsurpassed.

Oftentimes, after we have allowed the soldier to realize the great destroying power of a weapon, we might offset any fear of it by a thorough teaching of the skill in handling it.

Let us consider that little missile of death, the hand grenade. It seemed that every American soldier in the last war knew more about the demoralizing effect and effectiveness of the hand grenade, than of its operation, safety, and functioning. He had served but a short time when he had learned to discard it; it was impossible to get him to carry one. In defense positions, this was quite all right because grenades were held in dumps or handy depositories; but in attack, although each man started out with one, it mysteriously disappeared. He had acquired knowledge of its destructive power and what the result would be if it exploded in his pocket. He was constantly in fear of shrapnel or shell splinters hitting it. Therefore the average soldier, knowing little about its safety elements and more about its killing ability, was vitally and morally weakened.

The V. B. rifle grenade we used in the war also put fear in the hearts of many soldiers, especially those designated to carry them. Every man knew the result when it exploded, in its lateral dispersion and the distribution of its serrated parts. Few men knew of its construction, its safety, and those things that cause premature detonation and explosion. A soldier whose misfortune it was to pick out one with a concussion cap vent blocked by a foreign substance witnessed an odd and dangerous accident, the premature blast from this grenade flattening the discharger like a fly swatter. Another man from the same cause saw the barrel of his rifle twisted to almost a forty-five degree angle. Both these men started something. Everyone within telling distance knew the story. It was always good gossip.

The tactical instruction for defense envisioned the rifle grenadiers forming a platoon howitzer, a line of men firing their grenades over the heads of the front line. Who ever saw it worked out except at service schools? A helper with a V. B. rifleman often wore a grenade apron and you could find almost anything in it but a rifle grenade. Calling for one in an attack was fruitless. This all resulted from the psychological effect of a few premature explosions upon troops whose knowledge was limited chiefly to its power of destruction.

The highest percentage of our gasses

are deadly. The chief thing for our troops to know is how to properly adjust a gas mask. Does it pay to go beyond this scope of instruction in general?

Picture a member of the Chemical Warfare Service in the front line during a lengthy seige of a gas attack. Behind a well-adjusted gas-mask, picture a trembling, nervous person. Under the same conditions would one not be liable to hear an occasional giggle behind the mask of an infantry private? Whose fear is greater: that of the Chemical Warfare man proficient in the knowledge of the awfulness of gasses, or that of the Infantryman, whose instruction has been the simplest. Putting the fear of gas into the heart of an ordinary soldier will not increase his speed in adjusting a gas-mask. In fact it will tend to worry and hamper this operation in cases of emergency.

The thought has often struck me, and has perhaps also visited you, whether it would be better to concentrate on a weapon, less its powers of annihilation.

Sometimes I question on this score whether our present system of target practice is the best; soldiers constantly firing at a bull's-eye on every possible range. Would it not be better to convert all target ranges into combat ranges?

In target practice, what does a man think when he enters the butts for the first time and hears the smack of bullets from his own weapon. Of course he thinks of what damage that bullet can do. Do soldiers when returning to civil life carry a hate of the rifle? If we didn't have butts, he would never learn this side of it and still be confident in his weapon as the greatest rifle in the world.

Would combat ranges with exercises be better training? Targets could be manipulated from a distance and never place the soldier at the receiving end. This method would prevent a man's mind from being disturbed by the effect of his own weapon.

During the last war the Germans used a small gun commonly called the "whizz-bang." How many soldiers knew its right title, its caliber, its advantages? They all knew its terrible deadliness and some even thought once a shell was in the air a human body drew it towards itself.

Operators of machine guns, Stokes mortars, and one pounders all believe their weapon is the greatest in the service. So sincerely do they believe it that they think that the enemy is constantly watching to annihilate them. When in motion, they move cautiously and fearfully; when stationary there is equal worry. What is it that hampers them in their tasks? Why do they move so slowly in combat?

There is another weapon in the army that most of us forget; the human tongue. No little time should be spent in teaching its destructive power. It shoots out its deadly germs of fear-producing gossip with high velocity. Germs and deadly gasses rot the healthy body; but fear destroys the integrity of the regiment.

You can locate all the other weapons regardless of their tactical dispositions, attack and silence them; but what chance have you with a human tongue spitting out its fire of insidious attack? Its penetrating powers are so great it gets by the strongest defences. One must be constantly on the alert for

it. A man has a chance with the ordinary weapons, for these must be loaded and a trigger pulled. They are visible and the havoc and hazards can be easily estimated. There are stoppages and defects in other weapons, preventing their functioning, and with them a man has a gambler's chance. There is human impairment that hinders their accuracy, but not so with a terror-spreading tongue. Accuracy is not important. It is the most deadly weapon of them all.

What is the psychological effect? Is it possible that in the instruction of men that it is better to fight and live for their country than to fight and die for it, we have engendered the spirit of self-protection to the detriment of belligerent attack?

## A Note on the Rifle Stock

*From the Note Book of "General Experience"*

THE steady improvement in the operating mechanism of the rifle has produced a weapon of high precision. This precision can be translated into accuracy of fire only by proper holding and trigger-squeezing. An important factor in holding is the design of the stock. The present Springfield stock has undergone little change in forty years.

In general, the desirable features of a military stock are a high comb, a large butt-plate, a pistol grip, a cheek-piece with rounded edges, and a checked grip for the left hand.

The present type of symmetrical stock is cheaper to manufacture and may be handier for drill in the manual of arms. However, it cannot give the maximum results on the firing line. It should be noted that in combat only two positions are generally used—off-hand firing, and firing from a parapet rest. The use of the sling to steady the piece is confined to snipers. The stock is therefore of great importance in steady holding.

The stock is more than just a handle for the barrel. Its design should be such as to facilitate the fullest possibilities of accurate fire.

# "The Laborer is Worthy of His Hire . . ."

CAPT. DAVIS JONES, 16th Infantry

IS there a lesson for the joint congressional committee on pay adjustment to be derived from the China-Japan war, back in 1894-5? I see a very striking one.

In 1894 Japan was far from holding the eminent position she now maintains in the family of nations. It was customary then to consider her rather contemptuously as a country of grotesque little fellows who were clever at mimicking the culture of her more enlightened neighbors but who, nevertheless, were incapable of original thought or serious action. In their cute little nest of picturesque islands they cultivated pretty flowers, particularly cherry blossoms; they went in strongly for art; and they were extremely nimble acrobats. But as to their military power, it was seldom given a serious thought. Not even those writers whose works formed Western opinion of Eastern conditions considered Japan an impressive contender against the power of the colossal Chinese Dragon.

Look at your map now. Consider the vast stretches of Chinese dominion. Recall what you heard, even as a child, of the teeming millions of China's population, of China's fabulous wealth. Then regard the tiny group of islands that peep out of the Pacific beyond the Chinese coast. Is it any wonder that tiny Japan did not attain the dignity of serious consideration? Were the States of Georgia and Florida detached islands grouped with Cuba, and with Cuba should they declare war on the remainder of the United States, the situation would be strikingly similar.

The idea is amusing, isn't it? Just so was the world moved to laughter at the thought of the pigmy country of pigmy people daring to come to grips with the mighty Chinese Empire.

The fact that Japan won the war is an old story. But the ease and dispatch with which she won it were a revelation to the world at that time. Nor is it generally appreciated even yet that Japan faced with equanimity and overcame with efficiency many of the problems which faced our own General Staff in the World War.

The China-Japan war having been fought in Corea and Manchuria,—soldiers, armament, equipment, supplies of all kinds had of necessity to be transported by water. It was the first foreign war that Japan had waged in three centuries. It was her first experience with new weapons and new tactics she had so lately adopted from the West. She had challenged the acknowledged heavyweight champion of the East.

The first round of the David-Goliath contest went to David speedily and without protest. Phyong-Yang, the strongest city of Corea, specially fortified, was taken in one day of business-like fighting. The opposing forces were about even, numerically, but the Chinese had had forty days in which to prepare their defenses and the Chinese troops were disposed of in twenty-seven forts in and about the

city. The terrain offered painfully little cover to the attacking Japanese. They fought with breechloaders, while the Chinese were largely equipped with repeating rifles. Some six thousand of the Dragon's offspring were killed, wounded, or taken prisoner. Japan lost only six hundred and sixty-three men in all her Corean campaign.

With this battle, in less than two months after the declaration of war, Corea was conquered.

Then followed a battle on the Yalu River, the northern boundary of Corea. There, after crossing the wide and icy Yalu, storming the heights of a fortified hill (Hu-Shan or Tiger Mountain) and another fortified city (Chiu-lien-Ch'eng) in two days of actual fighting, the little Japanse army drove the Chinese hordes farther into the interior. They lost four officers and one hundred and forty men killed and wounded, and they buried nearly four times that many of the enemy. Here, too, they captured a wealth of arms and ammunition, including seventy-four field pieces.

The two battles mentioned above were fought by the Japanese First Army under Marshal Yamagata. The same army followed the retreating Chinese, playing hide and seek and pussy-wants-a-corner in and out of a score of Chinese villages and towns north of Corea Bay.

Simultaneously with the crossing of the Yalu the Japanese Second Army, under Marshal Oyama, landed north of Chin-Chow on the east coast of the peninsula. Two weeks later, again with only a day of fighting, the forts and the thirty-foot walls of Chin-Chow had fallen into the possession of the Japanese. Two days later they attacked Ta-lien Bay, the anchorage of the Chinese navy, second only in importance and strength to Port Arthur and Wei-Hai-Wei. At their advance the Chinese garrison fled after firing a few rounds.

It must be remembered that the forts at Ta-Lien Bay had been constructed by a German military expert after the most modern and approved system, and, that they were heavily armed. A Japanese officer, on inspecting one of the forts said that with one company he could hold it against a division.

The story of the taking of Port Arthur, that Gibralter of the Far East, differs little from the preceding narrative. Its numerous hills and forts with their modern heavy armament, fell to the Japanese in a single day, with the loss to the victors of eighteen killed.

All these successes had been without the direct assistance of Japanese navy. The navy, true, had already won an important battle (Hai Yang Island) making of Corea Bay a Japanese lake and leaving the Japanese transports free to operate at will. This is of obvious importance, in view of the fact that had the Chinese navy been successful it must have ended Japan's Corean campaign. History had already twice demonstrated that fact when in former ages Japan's attempts to conquer the Corean peninsula, the superior naval strength of Corea and China had made them abortive.

The only Chinese resistance in the entire war worthy of mention was made by their fleet at Wei-Hai-Wei. But after the whole squadron of torpedo boats had been destroyed or captured as they attempted to escape, and three of the largest vessels sunk, the remainder of the fleet surrendered,

their commander, Admiral Ting, committed suicide, and the war was ended.

It had taken seven months and some 120,000 of these supposedly ludicrous Japanese to prove to the world that theirs was the last laugh.

In the language of the Two Black Crows, "Why bring all that up?" What has all this ancient history to do with the pay bill? Please stand by a moment longer. Vladimir, formerly of the diplomatic mission to Corea, is broadcasting in *The China-Japan War*, published in 1905:

> The education of the Chinese people and public opinion all tend to discourage any latent warlike tendency of the nation. The military profession is looked down upon; mandarins of that class always ranking below civil mandarians; and a soldier is considered as the lowest of the people, as a person who cares for no decent calling and is unfit for it. Under such conditions it is natural that the Chinese soldiers should not be very brave, and generally are unwilling to throw away their lives for a country which does not appreciate their services. *Their pay is meager* (my own italics) and often curtailed by dishonest superiors. . . . . and the end of a war generally means the dismissal of all those who have been hastily enlisted at the moment of danger.

So, China, throughout her interminable history, has been repeatedly conquered by smaller nations. For two centuries and a half she has governed by a handful of Manchus, a hardy, northern race. For a generation or more, her policies have been dictated by European powers, enforced by less than a handful of troops.

Regard the opposite side of the picture, the Japanese.

After Japan abolished feudalism (1868) the nation was divided into four classes; the military caste led all the others, and was followed in turn by the agriculturists, the artisans, and finally the tradesmen. The first, the military or the samurai, elaborated a code of military ethics having for bases the sanctity of a promise and the superiority of death to dishonor—a code which produced extraordinary displays of devotion, loyalty, and courage.

Under the military shoguns (generalissimos), who ranked sometimes on equality with the emperor, sometimes conjointly with him, and never lower than second in rank, Japan enjoyed an almost uninterrupted peace for more than two hundred and fifty years. The China-Japan war was a revelation of the strategical ability and natural astuteness of her military leaders. No one has since doubted the valor of her troops.

The caste system in Japan no longer quite so strongly prevails. But, the Japanese soldier is respected and honored; he is still fed on the traditions of the shoguns and the samurai; he is well paid, well housed, fed and clothed. His countrymen appreciate him for what he is, what he has done and for his potential value in the future. What he did for his country in the war with China, he did again (and again to the astonishment of the entire world) in 1904 against the great Russian Bear.

The lesson?

The pay of the armed services of the United States has increased 11 per cent since 1908, as compared to an increase of from 25 per cent to 175 per cent for other federal services. In the United States the civilian mandarin decidedly and emphatically far outranks the military. Our status is a little better than that of the Chinese in 1894, merely because of a difference

in fundamental characteristics between the two nations. Relatively speaking we are approximately on the same level.

That this statement will provoke immediate and emphatic protests is understood. It will be argued that there is no comparison between the United States of America today and China of 1894. In the light of present thought and understanding it is true that there is little comparison between the two countries, now. Not so, thirty-five years ago.

I anticipate a few of the arguments.

1. Americans are born fighters, naturally and by their love of competitive sports.

It is granted that individually Americans are good fighting *material*. But armies are enormous teams. The individual hero has about as much place and opportunity in one as the grandstand player who will not or cannot submerge his individualism for the good of the varsity. Fighting today is a matter of highly specialized technical training. The days when the head of every family and all his male children were splendid guerrilla warriors are past. Even then it was a matter of training, specialized training.

2. Hunting is such a popular sport in the United States that every American is a good shot.

The World War proved the absurdity of this assumption, as every officer who had to qualify men with the rifle and other infantry weapons remembers to his chagrin.

3. Americans are naturally brave. No American army would run away as the Chinese did at Chin-Chow.

This, too, is purely a matter of training and discipline. There is no country, race, creed, or color which has a corner on natural physical courage. Our history is replete with examples of the untrained so-called soldier running away from battle. It is equally so that the trained soldier will not run, en masse. And, if this is true, there is every reason to assume that the Chinese ran at Phyöng-Yang, Chin-Chow, Port Arthur, and those other places for the same reason that the Union Armies ran from Manassas to and through Washington, D. C., from the first battle of Bull Run—lack of discipline and adequate training.

4. The United States dominates the Western World. She is too potentially powerful to be compared with a backward nation like China. Think of the millions of men she could put into the field, with the best arms and equipment in the world!

And just so did China dominate the Eastern World in '94. With her half billion population, her potentialities were even greater at that time than ours are even now. Her arms and equipment were superior to those of the Japanese. That she *was* a backward nation is the only faulty parallel in the comparison that I find worthy of mention. So far, our nation has not slid backward. It is only leaning. And, it is in the hope that we may avoid the slip that this paper is written.

Chinese treatment and Chinese pay in *any* vast, powerful nation, whose love of peace or hatred of war becomes a wilfully blinding obsession, tends to create the Chinese type of soldier.

For those who are inclined to look to the Bible for guidance, I would suggest a re-reading of

Luke 10:7 and I-Tim. 5:18.

# The Cruise of the Malolo

## A Soldier Sees the World

CORPORAL Z

THE INFANTRY JOURNAL is fortunate in being able to present to its readers in this issue the first two of a series of letters written by a former corporal of Infantry, now a captain's yeoman on the SS Malolo, to his company commander. The letters, telling in fascinating style the reactions of the ex-soldier to the peoples and ports encountered in the Malolo's cruise through the Orient, are entertaining in the extreme and are written in the easy style of one who is not averse to setting down his experiences as they appeal to him.

Corporal Z, setting forth from San Francisco at noon last September 21, visited scores of interesting ports before the Malolo returned to the Golden Gate just one day short of three months later. In the course of this cruise, a total of 22,634 nautical miles were covered and a general speed of about eighteen knots maintained. (For the benefit of the uninitiated, it might be well to indicate that a nautical mile measures 6080 feet as against the 5280 feet of the land mile).

Among the places visited by Corporal Z, now Captain's Yeoman Z, were Yokohoma, Kobe, Chingwangtao, Shanghai, Hong Kong, Manila, Saigon, Bangkok, Singapore, Batavia, Fremantle, Melbourne, Sydney, Auckland, Suva, Pago Pago, Hilo, and Honolulu.

In the first two letters, reproduced herewith, Corporal Z tells of the voyage from the west coast to Yokohoma, when the record for merchant vessels was established with a trip of ten days, six hours and thirty-eight minutes. One of the most interesting anecdotes of the series, the sinking of a motor launch, is also recounted in this installment, which tells of the hospitality of some Italian Marines who were near the scene of the sinking, in the shadow of the Great Wall some miles from Chinwangtao.

Subsequent issues will continue the argosy of Corporal Z.

### THE FIRST LETTER

S. S. "Malolo"
Yokohoma, Japan,
October 5, 1929.

Dear Captain,

Here is the first of the letters I promised to write to you while on the Pacific Cruise of the S.S. "Malolo."

Schofield Barracks seems very far away now. I don't suppose there are many in the old outfit who would remember me today, but if there are any I know you will give them the good word.

I have secured the somewhat soft job of Captain's Yeoman on this excellent vessel, and though a rather futureless rating in the Merchant Service, it is one that affords me a greater opportunity of knowing just what is going on from the standpoint of navigation than any on the ship save the deck officers, and I have every opportunity to write about what I observe thereby.

We sailed from San Francisco at noon on September the 21st and ar-

rived at Yokohoma via the Great Circle Track on the afternoon of October 2. We encountered more or less severe weather all the way and missed a typhoon about eight hundred miles from the Japanese Archepelago. It passed ahead of us, moving in a northerly direction, finally striking somewhere up the coast of Kamchatka.

Japan is just as charming as ever (I was here five years ago as a seaman) and Yokahoma is courageously building up after the disasterous earthquake of 1923,-though there is still plenty of evidence in the piles of debris.

The Japanese are the politest race on earth—they even have little oilcloth curtains suspended outside the automobile wheels to avoid splashing mud on pedestrians.

You get the impression that all young Japanese (they don't like to be called "Japs") are military students until you find out that all student bodies wear some kind of uniform. About eighty-five per cent of them wear spectacles; I don't know whether this signifies a weak-eyed race or is due to the fact that they pursue their studies with such ardor. I rather think the latter for they are so in deadly earnest about everything. Japanese students have been known to commit "Hara Kiri," honorable suicide by disembowelment— because of failure to obtain satisfactory marks in examinations. The soldiers I saw went about their business with an obvious fixity of purpose. When a Japanese laughs, however, he does that just as whole-heartedly.

I shall always think that the Japanese girls are among the most charming in the world (I guess that remark would not get me very far in Schofield) but they are artless, generous and friendly.

There are a couple of British warships in port, the Cruiser "Kent" and the Aircraft Carrier "Hermes" which is built along the same lines as the "Saratoga" though not so big. Contrary to the general supposition we get along very well with the "Limies"; you see, they brought a couple of our shipmates back to the ship after retrieving them. This is our first contact with legal drinking and some of the boys don't want to waste a minute of the three months cruise—and then again the gutters of Yokahoma are so restful, they seem to have been designed just for sailors to sleep in.

It has always been pointed out to me that should you desire to photograph the shy little Nipponese, you had to sort of stalk him with camera concealed, using the same tactics as when endeavoring to put salt on a bird's tail. I found that all you have to do is to walk on the dock with a camera displayed and you are immediately surrounded by divers gentlemen, who it seems have nothing else to do but display their dental work in front of any and every camera lens, one even went so far as to offer me two bottles of "Asahi" beer for one print of himself; he got the print. Of course, the girls don't come right out and ask you like the men, but they get that unmistakable look of the "girl who would like to be photographed;" seasoned cameramen like myself know and dread this look.

We sail on the seventh for Kobe and thence through the Inland Sea of Japan and the Yellow Sea to Chinwangtao to the Great Wall of China.

I will write to you when a port or

two has gone by; we have nineteen to make and all different.

THE SECOND LETTER

S.S. "Malolo"
Shanghai, China,
October 21, 1929.

Dear Captain,

Here is the second letter and it will read about like an intelligence report to headquarters.

We arrived here yesterday afternoon; some of the passengers had their pockets picked before the ship was made fast to the dock, by what were believed to be some of the erstwhile Russian nobility, but Shanghai is like that.

A rather interesting adventure befell me while the ship was laying at anchor at Chinwangtao, which I will recount to you; the passengers had all entrained for Peking—they call it Peiping now—and we had to ride at anchor and wait four days for their return.

The "Malolo," in addition to eighteen ordinary lifeboats, carries two motor launches equipped with radio apparatus; and a party of our engineers took one of these and cruised up the coast some fifteen miles to explore the Great Wall of China, which runs down to the sea at this point. It could be seen plainly from the ship, snaking its way up over the rugged mountains on its two thousand mile stretch into the interior.

There happened to be a high spring tide on this particular day, but as the tides hereabouts are treacherous, due to the formation of the coastline and the shifting winds, and the best tide tables published are therefore unreliable, they got stranded high and dry on the beach at the very foot of the Great Wall. I went with the salvage party next day, in a tug we borrowed from a British mining company; we were obliged to stand offshore about ten cable lengths (four thousand yards) because of the shallow and irregular bottom. As we were not previously aware just what the situation entailed, we had come equipped only with light lines, hopelessly inadequate for standing the strain of a heavy pull over such a great distance. The tug therefore put back to the ship that night for heavier lines, leaving the boatswain and myself to guard the stranded launch. The country roundabout is wild and desolate and the night winds off the Gulf of Laiotung extremely cold. I had nothing on above my shirt and the boatswain, who had fallen in the sea during the day's operations, might as well have been naked.

The Great Wall of China, which forms the boundary between China proper and Manchuria, is dotted all along with small, isolated, military posts, apparently occupied by most of the powers of the world. We made the acquaintance of some Italian Marines from the nearest of these forts. They spoke practically no English, but some of them, I discovered, spoke French (I have always been proud of my French) so we became very friendly. They were greatly interested in the two ragged looking sailors and the small launch cast up on their desolate shore; our ship was out of sight around a promontory.

They supplied us with kindling wood for a fire to dry the boatswain out, by the simple expedient of tearing up the "soccer" goalposts for the unoccupied fort of some other power. As I was able to converse with them, they took me to their fort to get some "supplies." Their quarters suggested the

Foreign Legion in *Beau Geste,* white washed and bare of all comforts. They wore dark green "pea soup" uniforms and flat hats during the day; at night they don ponchos and sort of trick hats that can be pulled into any shape, from a sunbonnet to "What the well dressed woman will wear this season;" they were armed with carbines, from which, by the size of the bores, they must have fired telephone poles.

They gave me wine, jam and stale bread; when I had eaten my fill, however, they brought some new bread.

There was an enormous portrait of Mussolini, about whom I made complimentary remarks in French; this brought forth another bottle of wine. Then warming to my subject, I told them I thought their Commandant resembled Mussolini. I must have attained the acme of humor for I was rushed off to the "Cantina" amid great applause. They plied me with excellent Bordeaux until I didn't seem to feel the cold any more and we started back to the beach laden with bottles of beer for the boatswain, and anyone else who thought he might be catching pneumonia.

During the latter part of the night the sentries visited our fire from time to time, in their ponchos they looked as I imagined gauchos would on a cold night on the pampas.

At daylight the tug returned with heavier lines and it was back into the icy water for us. After a hard day of heaving on two thousand fathoms of eight inch Manilas, we got the launch floated, so bidding goodbye to the good natured Italians, we steamed round the headland out of their sight and out of their lives too, I guess.

None of our party seemed to have any money with them on this adventure, but those Marines seemed to get a great kick out of giving us everything they had, purely out of downright goodheartedness; when we got to Shanghai however, the Chief Steward sent them about half a dozen large crates of the kind of delicacies I am quite sure they never get on the Great Wall.

Shanghai, being the largest of the Treaty Ports, is utterly cosmopolitan, the Wangpoo is bristling with armed craft of every nation with enough money to buy a cap pistol.

The "Sikh," Hindu police, are a fine body of men, their efficiency is chiefly due to their intense contempt for the Chinese; when in trouble with Chinese coolies, just shout for a "Sikh;" these bearded and beturbanned warriors dearly love to wade into a mob of coolies with a bamboo.

Shanghai is well supplied with exciting sorts of cabarets, where one may make the acquaintance of imperious Russian girls with straw colored hair and sea green eyes; it is in the back wash of the revolution.

Winter is coming and the native populace is beginning to look a little hollow-eyed—there are no soup lines in China.

We sail south for Hong Kong tomorrow—down where it is warm, away from this cold and famine that is approaching, I'm mighty glad I'm not a Chinese.

It isn't so easy to photograph the personnel in China as it was in Japan. They seem to have a horror of the black box with one eye in the hands of the foreign devil. I tried it out in the native section and fetched a hornet's nest about my ears—I had to start shouting "Sikh!"

*(To be Continued)*

# Demonstration and Education

MAJ. J. D. TOWNSEND, 65th Infantry

*The familiar tactical problem form used to present a discussion that has many interesting aspects and applications.*——EDITOR.

I. GENERAL SITUATION. Peace has been in progress for some twelve years. Troops are in garrison throughout the country, mostly in small regimental or similar posts. The usual peace-time training of the army runs along its placid way. Units are at peace strength, perhaps a bit below; ammunition and other allowances are small and restricted; the public scarcely knows it owns an army save when an occasional cry for economy arises.

II. SPECIAL SITUATION. The Steenth Infantry, stationed at Fort Humdrum, near the small city of Livewire, had recently acquired a new commanding officer, Colonel Spark, who cherished no idea of permitting his command to mire in this prevailing routine. He built fires under stubborn mules—such was his nature. One bright morning in mid-April he summoned before him Captain Average who had just reported to the regiment for duty and who had not as yet been assigned an organization, and addressed him somewhat as follows:

Captain, I am expecting shortly some official visitors. I should like to have you prepare and submit for my approval, within the next ten days, a plan for a demonstration of a war strength battalion in attack on ground in the immediate vicinity of the post. The regiment is at your disposal and such post facilities as you may require. I want a good show but it must be tactically correct. Make use of all Infantry weapons as far as possible and limit yourself to one hour or thereabouts. You get my idea?

Captain Average admitted that he did, saluted, faced about, and marched out as well befitted one in much less of a mental haze.

III. REQUIREMENT. The plan of Captain Average exactly as he submitted it to Colonel Spark one week later.

## COMMENTS

Now before we examine Captain Average's solution, the carefully worked out plan that racked his brain for many days and nights and on which, incidentally, he would have received in all probability a big capital "S" had anyone graded it, let us note that:

*First, Captain Average's plan is readily adaptable to any regimental post under normal conditions;*

*Second, parts may be added provided if there is additional equipment (tanks, airplanes, and the like), or deleted if not desired for any reason;*

*Third, if any officer has the present plan in his possession he can prepare a demonstration along similar lines in about one-eighth the time that it took Captain Average, and with much less mental effort;*

*And fourth, Captain Average's plan has been tested, executed, and corrected in actual performance.*

IV. A SOLUTION. Captain Average presented to Colonel Spark on the seventh day after their conference the following neatly typewritten plan in compliance with the instructions he had received.[1]

[1] The demonstration can be effected on almost any plot of ground 600 yards square.

## DEMONSTRATION

WAR STRENGTH BATTALION IN ATTACK

*Contents*

Section 1—Introductory Remarks.
Section 2—Combat Principles Demonstrated.
Section 3—The Problem.
Section 4—Time Table of Events.
Section 5—Instructions for Troops.

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### SECTION 1—INTRODUCTORY REMARKS

1. *Purpose.* The purpose of this demonstration is to utilize the eye as a channel to the mind by presenting as accurate a picture of modern combat as is possible with the means at hand, due regard being given safety precautions.

2. *Organization.* The unit selected for the demonstration is the infantry battalion at war strength. The entire regiment is used to form this unit by expanding units of the 2d Battalion and by attaching to it the Howitzer Platoon. The Post Ordnance Detachment is also used.

3. *Assumptions.* Effort has been made to approximate local conditions, and arms not actually present on the post have been omitted. The enemy's force, although partially imaginary, is represented sufficiently to complete the picture.

4. *Spectators.* Arrangements have been made for spectators to witness the demonstration. Officials, R. O. T. C. students, National Guard, Reserve officers, and others are invited to attend. Officers are encouraged to invite guests. Provisions are made for ladies to attend if they desire. The public is welcome.

5. *Programs.* Copies of this circular will be mimeographed in sufficient numbers for distribution to spectators (with the exception of Section 5, Instructions for Demonstration Troops.)

### SECTION 2—COMBAT PRINCIPLES DEMONSTRATED

1. *General.* In battle there are no rules to follow. There are, however, certain well established principles that serve as guides to action on the part of leaders. Endeavor has been made to demonstrate several of these in this exercise. Those particularly emphasized are described below in the order of their appearance in the demonstration.

(Here Captain Average discussed briefly under separate headings smoke, pyrotechnics, the line of departure, machine guns, the 37-mm. gun, the trench mortar, the employment of support sections and platoons, artillery in defense, advance by infiltration, gas, passage of lines, advance in small groups, evacuation, battalion command, assault fire, and the charge, as they are used in the demonstration. These are too well known and understood for repetition in this article. They were stated for the benefit of spectators).

### SECTION 3—THE PROBLEM

1. *General Situation.* A well prepared foreign power, Red, has recently declared war upon the United States, Blue. To cover their mobilization the Blues are using all available Regular troops.

2. *Special Situation (Blue).* Due to the superiority of Red forces the Blues have been slowly falling back but have finally been able to check the Red advance in the vicinity of Livewire. The Blue commander has recently received reinforcements in sufficient numbers to permit an offensive.

However, his force is lacking in artillery.

Yesterday, in accordance with the Blue commander's plan the Lieutenant Colonel "2d Battalion" assembled his subordinate commanders at 5:00 P. M. and delivered his verbal order for the attack. Such parts as apply to the problem at hand are given below:

The Reds have been halted in their general advance. Their outpost holds a line parallel to ours and running through Hicks Corners. (Hicks Corners is near the post; the nearer the better.) They have received no reinforcements.

Our regiment, in conjunction with adjoining troops, attacks tomorrow with battalions abreast. The 3d Battalion is on our left. The 1st Battalion is in reserve. Company D, from positions on Machine Gun Hill, supports the attack by overhead fire on enemy positions on Red Hill.

This battalion, with the 2d Platoon Howitzer Company attached, with Company E on the right and Company F on the left, will attack in the morning, making its main effort on its right. It will capture the Red positions in its immediate front and press on to Hicks Corners, driving the enemy to the (north, south, or whatever direction applies).

Time of attack: 10:05 A. M.
Line of Departure: (Designate one)
Direction of attack: (So many) degrees magnetic azimuth
Zone of action:
Left Boundary: (give one)
Right Boundary: None
Boundary between companies: (Give one)

Company E, with its left resting on the boundary between companies, will drive forward on a front of 300 yards and, assisted by Company F, capture the enemy's positions within its zone of action and push on to Hicks Corners, driving the enemy to the (give a direction).

Company F, with its right resting on the boundary between companies, will drive forward on a front of 300 yards, capture the enemy's positions in its front and assist Company E in the capture of its objective. It will then push on to Hicks Corners, driving the enemy to the (give a direction).

Company H, will support the attack of the battalion from initial firing positions half way up Blue Hill. It will deliver overhead fire on Red positions extending through Red Hill.

The 2d Platoon Howitzer Company will support the attack from positions on Blue Hill near the lone pine tree on the crest. Special attention will be paid to enemy machine guns on Red Hill.

Company G, in battalion reserve, will await orders in the draw in rear of Blue Hill. It will furnish a connecting group of one squad to maintain contact with the 3d Battalion on our left. It will also furnish a section (less one squad) as right flank combat patrol for the battalion.

* * *

Notes:—

1. The time of attack (10:05 A. M.) is set for the purposes of the demonstration. Usually the time of attack is set at around daybreak in order to afford the troops the cover of darkness in approaching the line of departure.

2. The battalion commander would deliver his order to his unit commanders at some point from which the battalion zone of action could be well seen and important ground features pointed out. Upon completion questions would be answered and any points of doubt cleared up in informal conference.

3. The Blues have a covering force which has not been mentioned in front of their line of departure. This force has not been represented since it does not enter into the demonstration. Assault units would pass through these security detachments.

SECTION 4—TIME TABLE OF EVENTS

| *Number* | *Time* | *Event* |
|---|---|---|
| 1 | 10:00 | The Blues place a smoke screen in front of their line of departure to conceal the approach of their assault units to that line. |
| 2 | 10:03 | Red outguards signal "Enemy attacks in force" by firing green Very pistol lights. They then retire around the flanks. |
| 3 | 10:05 | Blue assault sections launch the attack, leaving the line of departure and passing through the smoke screen in squad columns. They are able to advance 25 yards past the screen before they are compelled to deploy and open fire. The Reds open fire as soon as Blue assault units can be seen. |
| 4 | 10:05 | Blue machine guns support the attack by opening overhead fire. Red gun fire as targets are presented. |
| 5 | 10:05 | The 37-mm. gun opens fire on such Red machine guns as it can definitely locate. The trench mortar is not as yet within effective range. |
| 6 | 10:08 | The connecting group from the reserve company appears on the left of the battalion to maintain contact with the 3rd Battalion. |
| 7 | 10:10 | Blue assault sections are able to advance 50 yards by infiltration. |
| 8 | 10:15 | Assault sections are held up by heavy fire from Red positions in their front and the support sections are committed to the action. With this additional fire power the entire line is able to advance 50 yards by four-man rushes. |
| 9 | 10:17 | Red infantry calls for artillery assistance by firing red Very pistou lights. |
| 10 | 10:19 | Red artillery defensive fire comes down in front of its Infantry. |
| 11 | 10:22 | The left assault platoon discovers gas and puts on masks. |
| 12 | 10:25 | Blue assault units continue their advance by small group rushes, some 50 yards. |
| 13 | 10:28 | The support platoon of the left assault company comes up in section columns, moving by bounds. The company commander orders two rifle grenadiers from this platoon to work up to the left of the line to a position from which they can fire rifle grenades into the enemy's position. |
| 14 | 10:30 | The right assault company, being held up by heavy fire in its front, uses its support platoon on its right to advance its line. With this additional fire power the company is able to advance its line 75 yards by short squad rushes. |
| 15 | 10:32 | The left assault company uses its support platoon on its left, executing a passage of lines through its left assault platoon. The former assault platoon is reorganized under such cover as is available and follows the assault as directed by the company commander. By this maneuver the company is able to advance its line 75 yards by short squad rushes. |
| 16 | 10:35 | A runner is wounded. He applies his first aid packet. Later he is picked up by litter bearers and carried to the rear. The entire line has advanced now sufficiently for litter bearers to operate and a pair appears at work in rear of each assault company. |
| 17 | 10:38 | The firing line continues its advance by short squad rushes 50 yards. |
| 18 | 10:40 | A small smoke screen is laid down on Red Hill by the trench mortar to prevent observation by Red machine gunners on the hill. |
| 19 | 10:43 | The entire line continues its advance by short section rushes, 75 yards. |
| 20 | 10:45 | The battalion commander, with a small reconnaissance party, appears on the left of the battalion zone and observes the progress of the attack. |
| 21 | 10:47 | The battalion commander orders a section of machine guns forward to support the attack as Blue guns are being masked in their present positions by their infantry. The section works forward along the left boundary and goes into action. |
| 22 | 10:50 | The battalion commander decides to use his reserve company to envelop the enemy's left if his assault units are unable to carry the position. He directs the commander of that company to move his organization to a position in readiness on the right flank. The company commander leaves to carry out the order. |
| 23 | 10:55 | The entire firing line, now within 200 yards of the Red position, fixes bayonets, rises, and advances, using assault fire. |

| *Number* | *Time* | *Event* |
|---|---|---|
| 24 | 10:57 | The Reds start a precipitate retreat from their trenches. |
| 25 | 10:58 | The Blues charge the position and drive out with the bayonet or capture what Reds remain. |
| 26 | 11:00 | Blue assault units signal "Objective Reached" by firing white Very pistol lights. |
| 27 | 11:02 | Party of Red prisoners starts to the rear under guard. |
| 28 | 11:04 | Blue units start reorganization under such cover as is available and behind small covering detachments. |
| 29 | 11:05 | Demonstration is terminated by red and green fire signals along lines of original Red and Blue positions. Buglers sound recall. |

SECTION 5—INSTRUCTIONS FOR DEMONSTRATION TROOPS

1. *General.* The demonstration unit is the 2d Battalion, with the Howitzer Platoon, Regimental Headquarters Company attached. It will be augmented to war strength as prescribed in par. 2 below. The necessity for close adherence to the time table (Section 4 above) is emphasized. All watches will be synchronized on the battalion commander's at 9:30 A. M. All troops will be in position by 9:45 A. M.

2. *Organization.* Demonstration personnel is organized as follows:

STAFF

Officer in Charge—Capt. Average

| | | | |
|---|---|---|---|
| Smoke | Lt. 1st Bn. Adj. | Spectators | Maj. 1st Bn. |
| Explosives | Capt. Ordnance | Announcer | Capt. S-1 |
| Pyrotechnics | Lt. 3d Bn. Adj. | Seating | Capt. S-4 |
| Rifle grenades | Capt. Co. K | Traffic | Capt. Hg. Co. |
| Machine guns | Maj. 3d Bn. | Press | Capt. Serv. Co. |
| Enemy (Reds) | Capt. Co. L | Evacuation | Capt. Surg. |

Advance of firing line—Capt. S-3

TROOPS

BLUE

Bn. CP

| | |
|---|---|
| C. O. | Maj. 2d Bn. |
| S-3 | Lt. 2d Bn, Adj. |
| How. Plat. | Lt. Hq. Co. |
| 4 Runners | Hq. Co. |

*Company E*

| | |
|---|---|
| Co. Comdr. | Capt. Co. E |
| 1st Plat. (Co. E) | Lt. Co. E |
| 2d Plat. (Co. A) | Lt. Co. A |
| 3d Plat. (Co. I) | Lt. Co. I |

*Company F*

| | |
|---|---|
| Co. Comdr. | Capt. Co. F |
| 1st Plat. (Co. F) | Lt. Co. F |
| 2d Plat. (Co. B) | Lt. Co. B |
| 3d Plat. (Co. K) | Lt. Co. K |

*Company G*

| | |
|---|---|
| Co. Comdr. | Capt. Co. G |
| 1st Plat. (Co. G) | Lt. Co. G |
| 2d Plat. (Co. C) | Lt. Co. C |

*Company H*

| | |
|---|---|
| Co. Comdr. | Capt. Co. H |
| 1st Plat. (Co. H) | Lt. Co. H |
| 2d Plat. (Co. D) | Lt. Co. D |

ENEMY

RED

C. O. ..... Capt. Co. L

Co. L ..... Lt. Co. L Co. M ..... Lt. Co. M

3. *Time.* 10:00 A. M. April 31, 1930. Rehearsal at same time preceding day but without ammunition, smoke, etc.

4. *Equipment.* Full field, less rations, ball ammunition, and roll. Gas masks will be carried by the left assault platoon (Company B). Shortage in organization's equipment will be made up by borrowing from other companies. Masks will be put on as prescribed in the time table at 10:22 (See Event No. 11) and will be removed at 10:30.

5. *Ammunition.* The following blank ammunition will be required:—

| *For Each:* | *Amount* |
|---|---|
| Man armed with the rifle | 60 rounds on the person |
| Machine Gun— | |
| Company D | 1 belt (250 rounds) |
| Company H | 3 belts (250 rounds each) |
| Company M— | |
| 1st Section | 3 belts (250 rounds each) |
| 2d Section | 1 belt (250 rounds) |
| 37-mm. Gun | 35 rounds |

If shortage of rifle ammunition should occur at any time during the demonstration it may be sent forward from the reserve company, which will require little or none. Above amounts are well within organizational allowances. If additional can be used it should be issued to automatic riflemen.

6. *Rates of Fire.* Rates below serve as guides only and will be followed as the tactical situation indicates:

| *For* | *Rates* |
|---|---|
| Rifles | 1 round per minute |
| Machine Guns (except 1st Sec. Co. D) | Bursts of 5 every 30 seconds |
| 1st Section Company D | Bursts of 5 every 10 seconds |
| 37-mm. Gun | 1 round every 2 minutes |

7. *Machine Gun Missions.* Guns are assigned missions as follows:

Company D

1st Section—On carts in rear of Blue Hill ready to go into action as prescribed in the time table, Event No. 21 at 10:47, as close to spectators as possible.

2d Section—On carts in rear of Blue Hill to be used for any emergency purpose as directed by the Machine Gun Officer.

Company H—In action on Blue Hill.

Company M

1st Section—In action on Red Hill.

2d Section—On carts in rear of Red Hill to be used for any emergency purpose as directed by the Machine Gun Officer.

All guns are under the supervision and control of the Machine Gun Officer, Maj. 3d Bn. Sections held in reserve on carts are to be used in case of stoppages or other emergency. They should be placed in action, in any event, toward the end of the demonstration.

| For | From | Report To | N.C.Os. | Pvts. | Remarks |
|---|---|---|---|---|---|
| Smoke | Co. C | Lt. 1st Bn. Adj. | 3 | 10 | 1 Sgt., 2 Cpls. |
| Explosives | Ord. & Hq. Co. | Cat. Ordnance | 2 | 4 | Selected by Capt. Ord. |
| Rifle Grenades | Co. K | Capt. Co. K | 1 | 4 | Rifle Grenadiers |
| Pyrotechnics | Hq. Co. | Lt. 3d Bn. Adj. | 1 | 2 | With Very pistols |
| Enemy | Cos. L & M | Capt. Co. L | All | All | See par. 2 above |
| Evacuation | Co. C | Capt. Surg. | 0 | 6 | With 3 litters |
| Spectators | Co. C | Maj. 1st Bn. | 2 | 4 | With belts only |
| Traffic | Hq. Co. | Capt. Hq. Co. | 2 | 4 | With MP brassards |
| Company F | Co. G | Capt. Co. F | ? | ? | To fill blank files |
| Messengers | Hq. Co. | Maj. 2d Bn. | 0 | 4 | Not mounted |
| Orderlies | Hq. Co. | Capt. Average | 0 | 2 | Mounted |
| Direction | Hq. Co. | Capt. Average | 0 | 0 | 1 mount |

8. *Details.* Details will be furnished as indicated below:

For Event No. 1—80 Candles, 2 for each 15 yards of front
For Event No. 18—10 Candles

All details will be reported as above at 9:30 A. M. for both the rehearsal and demonstration proper.

9. *Specialties.*

(a) *Smoke.* In charge of Lt. 1st Bn. Adj.; released as prescribed in the time table, Events Nos. 1 and 18, at 10:00 and 10:40, respectively. Required as follows:

If the wind is right all candles need not be lighted. Candles burn about three and one-half minutes. Screen must be sustained, by lighting candles successively, for six minutes or until the assault troops are well through it.

(b) *Explosives.* Capt. Ordnance in charge. Detonations will commence at 10:19 as per Event No. 10 in the time table, and will cease not later than 10:40. Danger area in front of Red Hill, 100 yards square, will be staked off, roped and guarded. Explosives will be placed in this area the morning of the demonstration. Forty triton blocks of TNT with electric blasting caps required. Blasting machine and control board will be used. "Duds" will be marked on the control board and policed immediately after the demonstration. Initial detonations will consist of two salvos of fours; subsequent ones at about one per minute. Twenty grenades, hand, white phosporous, will be used to thicken the detonations, at least ten of these will be bound to triton blocks and the remainder thrown.

(c) *Rifle Grenades.* Capt. Co. K. in charge. Fire to open as laid down in the time table, Event No. 13, at 10:28 and to cease firing not later than 10:38. Rate of fire unrestricted. Bursts will be placed on the battalion left boundary, well away from ground over which the firing line will have to advance. Range 225 yards—air bursts. Twenty grenades, rifle, smoke, WP, will be fired. Upon completion the detail will advance with firing line to danger area, beat out any remaining fire, and police any "duds." Such duds should be destroyed in conjunction with Capt. Ordnance immediately after the demonstration. Grenades will be fired from some spot close to the spectators on the battalion left boundary.

(d) *Pyrotechnics.* In charge of Lt. 3d Bn. Adj. Very pistol lights and colored fire will be released as follows:

| Event No. | Time | Color | No. to be fired | Fired from | Remarks |
|---|---|---|---|---|---|
| 2 | 10:03 | Green | 9 | Red Outguard | Retire around flanks |
| 9 | 10:17 | Red | 9 | Red Hill | Rockets may be substituted |
| 26 | 11:00 | White | 9 | Red Hill | Rockets may be substituted |
| 29 | 11:05 | Green & White | 4 ea. | Red and Blue Hills | Colored Fire |

Very lights will be fired from three pistols at intervals of at least 30 yards.

(e) *Enemy (Red).* Cap. Co. L in charge, guided in action by the time table. Detail Cos. L and M; main force on line of Red Hill; outguards about 300 yards to front. Outguards will retire around the flanks in accordance with a pre-arranged plan. Explosive danger area will be carefully avoided.

(f) *Evacuation.* Capt. Surg. in charge, will see that "wounded runner" Event No. 16 at 10:35 is carried out as prescribed and that two other pairs of litter bearers work properly in rear of the assault units.

(g) *Advance of Firing Groups.* Capt. S-3 in charge, who will see that the advance is regulated as laid down in the time table. Stakes will be placed along the boundary between companies, with departure time marked on each. General alignment on the center for the battalion. Rushes will be short, not to exceed 20 yards at a time. Total number of yards to be covered by rushes—375; time allowed—47 minutes; number of yards to be rushed per minute—8. Capt. S-3 will advance with the line along the boundary between companies; interior assault platoon commanders will guide on him. Casualties will be directed by company commanders as the situation indicates during the advance of the line.

(h) *Battalion Commander.* The events in which the battalion commander is involved, viz., Nos. 20, 21, 22, will be carried out as close to the spectators as possible, and within earshot.

(i) *Spectators.* Major 1st Bn. in charge. He will be assisted by Capt. S-1—Announcer, Capt. S-4—Seating, Capt. Hq. Co.—Traffic, and Capt. Serv. Co.—Press. Spectators will be restricted to such limits as he may prescribe. They will be placed in the general area along the left boundary of the battalion and near the center of the battlefield. Seats as available will be provided. A small stand and a tent fly will be provided for the commanding officer, official visitors, and distinguished guests. Events as they occur will be explained and questions answered.

10. *Safety.* The Post Surgeon will station an ambulance with suitable equipment in rear of Blue Hill for use in case of accident.

V. *Conclusion.* But why go to all of this trouble? Here are a few of the more important advantages of demonstrations of this sort.

First, they form an excellent means of instructing all participants, for they present as good an idealized picture of modern combat as is possible in time of peace.

Second, leaders are given an opportunity to handle war strength units under conditions that simulate actual combat.

Third, as a rule men exhibit great interest in demonstrations, and, accordingly, perfect their technique much more readily than at drill or in the lecture room.

Fourth, these demonstrations form an excellent means of instructing the civilian components of the Army.

Fifth, and last, civilians are generally very interested and eager to attend demonstrations as spectators. By inviting them and providing for them the Army appears before the public in a most favorable light as both host and defense force.

# Natural Tendencies in Combat

MAJ. J. W. LANG

WATER flows down-hill. A perfectly simple statement of fact which leads to another one,—if, in its progress, water runs through a turbine or over a power wheel, it produces astounding results. Water may be forced up-hill, but power is necessary to accomplish this result.

By analogy, the tendencies and basic instincts of men follow a natural and fairly definite course. By training and by the exercise of close supervision, we may direct their natural tendencies into other channels. The closer these channels to the natural behavior of men, the easier the training and the less the necessity of supervision.

If in our training we follow natural reactions—an emergency will be met in a natural manner and our men will do exactly what we want and expect them to do.

The experience of company, platoon, section and squad leaders in combat units in France demonstrated conclusively the following:

The tendency of a small unit commander to exercise his command at the most important and dangerous point in the combat is almost irresistible.

In such a situation, his urge to do personally the most important thing to be done is also almost irresistible. To take a hypothetical case, if a section is held up by a machine-gun nest, the tendency of the section leader is to take one squad and outflank the nest, leaving the second-in-command in charge of the remainder of the section with the mission of keeping up the fire to pin the enemy to the ground. Then, when the section leader gets his flanking squad into a good firing position, he is impelled by a natural tendency to seize a rifle or automatic rifle and join in the fire fight.

In such a situation, the volume and accuracy of fire are of vital importance. It is here that supporting fire becomes nil. Fire superiority must be gained and maintained if casualties are to be kept down.

If these statements are true, then it is obvious that our training regulations should take every advantage of these natural tendencies, and the section and squad leaders, if armed at all, should be armed with a weapon which will add greatly to the fire power of the squad.

Normally, the squad leader does not engage in the fire fight except under unusual circumstances, as when closing on the enemy (TR 420-105, par. 3). But when within 400 yards of the enemy the natural tendency is for him to join the firing line and blaze away. He rarely, if ever, resists this tendency.

Therefore, it is apparent that section and squad leaders should be armed with a weapon that is incapable of firing effectively at ranges in excess of 600 yards, but which is able to lay down a heavy and reasonably accurate fire for a limited time at ranges not exceeding 400 yards.

Such a weapon will preclude section and squad leaders neglecting their fire control during the earlier stages of the attack or defense. And conversely—such a weapon will add volume and efficiency to the fire of the unit at the very time when increased fire power is essential, and when fire control takes care of itself. The fire of supporting weapons lifts when the distance be-

tween the hostile lines becomes short. Then it is that every weapon in the hands of the unit should be utilized to the fullest degree.

What characteristics should the ideal weapon for section and squad leaders possess?

It should be light in weight; not over ten pounds. Its ammunition should be such as not to complicate the ammunition supply; therefore it should fire a type of ammunition already in use. Its ammunition should be light so as to permit a great number of rounds to be carried. It should be accurate and effective up to 600 yards. It should be automatic in character, capable of single shot action and automatic fire. It should be rugged and of the minimum number of parts. It should be aircooled. It should be capable of being fired from the shoulder or hip. It should be capable of being slung from the shoulder by a strap or in a scabbard,—therefore, for comfort, it should be short. It must function under the most unfavorable field conditions.

Does such a gun exist? It does. The underworld, the gangster and the racketeer, have used the "Tommy Gun" for several years. The submachine gun fills every requirement of the above specifications and in an admirable degree.

It weighs ten pounds. It fires the .45 caliber pistol ammunition at the cyclic rate of 600 rounds per minute. Its accuracy is uncanny and with tracer ammunition should prove effective against low flying attack planes. It is loaded with clips holding 20 rounds. 100 cartridges weigh 4.6 pounds. 300 rounds in clips weigh 19.8 pounds. It can be fitted with a bayonet, but who wants a bayonet when he has a "scatter gun" in his hands?

Some will say: "But this adds another weapon to the Infantry!" True, but not another type of ammunition. If there be a good reason for adding the Auto Rifle or the semi-automatic shoulder arm, then there is ample reason for increasing the firepower of the Infantry section even at the expense of adding one more to the 15 Infantry weapons.

In patrol work, in advance, rear and flank guard actions, in holding a defile or bridge head, in general in the combat of small units it should be a terrible weapon to the enemy. When the "Tommy Gun" hits 'em they stay hit.

Four of these guns are undergoing tests by the Infantry Board and four by the Tank Board.

Are there any cogent reasons why section and squad leaders should not be armed with a weapon that fills the requirements set forth above, and thus take full advantage of the natural and irresistible tendencies of the leaders of smaller units?

Why attempt the impossible when the inevitable can be turned to our advantage?

# The Training of the Infantry Team

## Team Shooting

CAPT. JOSEPH L. TUPPER, 24th Infantry

and

1ST LIEUT. JOSEPH I. GREENE, 24th Infantry

In the four preceding articles of this series the authors have described the training the 1929 Infantry Team. They have outlined in particular all inovations of training that were tried and found successful, and have avoided as far as possible dwelling upon the older and basic training methods that time seems to leave unchanged from year to year. The authors reserved the present and last article of their series for the subject of "Team Shooting." But they found themselves, when they came to write the article in a similar position to that in which any team should find itself when it is time for the first shot of the match—nearly all that should have been said, had been said.

When a team is ready to shoot, its training, under ideal circumstances, is at a point beyond which further training would be superfluous. If actual training is permitted to extend in any great degree into the days of competitive shooting period, it sets up an undesirable and distracting interference. Team officials must be content with the condition of their team. If there is any unreadiness for a contest they must feel that it is due to faults in training methods or training schedule. They must realize that little or nothing can be done after the first shot is fired.

Even when a match endures for several days, this same thing holds true. The commander of an army does not drill his troops during the lulls of battle; he lets them rest when he can; when he cannot, he requires only those activities that are also preparation for the continuation of the fight.

When the 1929 Infantry Team approached the firing line at Camp Perry, the team captain and coaches were confident that their team was ready and that any team which defeated it must indeed be at an excellent state of training. They had put their best into the team and the team had never failed to respond, in turn, with its best endeavors. Consequently, the officials were prepared not only for two days of steady accurate shooting, but for any out of the ordinary contingency which might arise. They knew that their team could meet any difficulties which were at all within reason.

Consequently, when Friday, September 13, the first day of the big match, dawned with a cold blustering wind coming from about seven o'clock, with a sky overcast and a light rain—almost a mist—falling, they refused to be worried. The weather conditions promised to be trying indeed; but so long as the targets could be seen at all, the officials and the team knew that all the shooters could hit close to the centers of them. Although the weather might make the

day's work unpleasant and difficult, practice shooting in bad weather, "sight picture" training under all conditions of light and weather thorough windage practice, and co-ordination of shooters and their rifles, as well as a splendid morale of the team, gave assurance to the captain and his coaches.

As soon as the team assembled on the range the coach told the five pairs of shooters what time they were to report to the firing line. The firers were also cautioned to keep thoroughly warm and under shelter until their turns for firing came.

The draw for targets placed the Infantry team between a team from the National Guard, on its left and an R. O. T. C. team on its right.

Because of foulness of the day, the firing was a half an hour late in beginning. For the Infantry team, a strong hard shooting pair, consisting of two experienced team shots, led off. They set a good pace. As each pair came up, the coach, by his manner and words tried to direct each man's mind upon the business at hand. All appearance of tension was avoided and the work was carried on in as normal a way as possible. Here, the thorough knowledge of his men by the coach came into play.

At the end of the off-hand firing the team found itself among the leaders. The line-up was then changed by putting the pair that had shot in first place at the beginning, in the last place on the shooting order. No further change was necessary during the remainder of the match.

Smoothness and precision of shooting characterized also the second division of the match; the 200-yard rapid fire range. Here the scores were high enough to put the Infantry team in the lead.

The 300-yard rapid fire was next. This stage saw the team get its first and only bad "break." The morale was so fine, however, that the team hardly lost its balance for more than a moment; and after regaining it, went along at the same fast, smooth pace as before. The error—one that might have upset badly a less thoroughly trained team at this point of the match—was not the result of poor shooting by any of its members but was due to the incorrect placing of the shot groups from faulty co-ordination. It brought out very forcibly the necessity for the co-ordination and analysis of a large amount of firing data at every range and by every shooter before a match is begun. The amount of firing data that were used for the co-ordination of the 300-yard rapid fire shooting was not as complete as it should have been; hence, the slight break in the scores which occurred here.

Any faltering in the pace of the rapid fire work was soon forgotten and when the 600-yard slow firing began the speed and smoothness with which the teams could work was completely apparent. Here, too, was laid the foundation for the strategy of the last day's firing.

When the 600-yard firing was completed the Infantry found itself tied with the Engineer team for the runner up position, seven points behind the leading Navy team, with only the long, hard, 1000-yard range remaining. Although no record was kept, it is believed that the team members and officials slept soundly and well that night. They were not worried; they knew they could shoot at 1000 yards;

and they went to the firing line on the second day confident now of winning.

The 14th brought no improvement in the weather, and all indications were that conditions would get worse during the day. The team officials, basing their decision upon the proved rapidity and machine-like work of the team, agreed to have team shoot as fast as possible, without any effort to take advantage of short periods of improvement in the weather, basing most corrections of firing data upon the spotter.

This method of team firing, of course, calls for close and fast co-operation between coach and firers. The coach must make decisions without hesitation. He must then transmit them to the firers at once. Here again the coach's knowledge of the firing habits and temperaments of his shooters is absolutely a requisite, because he must make every decision on the preceding shot of the firer. When correction is necessary he must judge the probable effect upon the shot just fired of atmospheric conditions, mechanical errors of weapon or ammunition, and—most difficult of all—human errors. As all three usually contribute to the shot which misses the bull's eye it is best in all instances when the error can not be blamed definitely on any single one of these three causes to make only partial correction. In this kind of shooting, furthermore, there can be no question of failure on the coach's part.

The results of the decision of the team officials to continue hard, fast shooting until the end of the match are almost too well known for comment. They completely justified the course that was taken and the method that was used. Only one score fell below 90, and that just one point below for an 89. The team total for the 1000-yard work was 916, twenty-two points ahead of the second place team at this range, the Marines, and 84 points ahead of the Navy team, which had been leading.

These five articles were written in the belief that all infantry lovers of rifle shooting would be interested in the training methods of the 1929 Infantry team, the present National Champions. There are three main lessons to be drawn from the success of this team, three things that were predominantly important:

(1) The unstinted use and application throughout the training period of individual and group psychology;

(2) The formation of shooting habits which have as their ultimate result, hard and reasonably fast shooting;

(3) The use of very complete and detailed records, in graphical form wherever that form was applicable.

# Is Division Aviation Worthwhile?

AN INFANTRY OFFICER

CHANGES in tables of organization whereby the observation squadron and its adjuncts, at least for the time being, cease to be an integral part of the infantry division, cause students of infantry tactics to ask themselves whether division aviation is worth while, and to ponder over the probability that this is only an economic peace-time arrangement and not a reality for war operations.

During the past five or six years when division aviation, consisting of the observation squadron of thirteen airplanes with its photographic section and attached balloon company, was an integral part of the infantry division, many infantrymen became wedded to the idea by study of its functions at service schools and while serving in aviation-supplied divisions. Now the practical divorcement of the squadron from the division is not only another change in tables of organization to remember, but causes one to weigh the probability of successful cooperation on the battlefield of an air squadron as an integral part of the division rather than one attached from corps.

The idea of having an observation squadron as a part of the infantry and cavalry divisions was recommended by the Lassiter Board, one of the first to be appointed by the War Department after the World War to consider the problems of aviation. Its principal accomplishment was the recommendation outlining a five year building program in the Air Corps.

Aviators who were complaining that war aircraft would soon come to the end of its serviceable period were enthusiastic over the five year expansion period that subsequently became a law and is now in operation. However, the bitter that accompanied this morsel was the fact that certain observation squadrons would no longer, as they did in the World War, operate from corps airdromes. For they had been largely under the supervision of the corps air officer, and were only attached to divisions as the latter served in front lines. Many of these observation squadrons would cease to be an integral part of the higher headquarters and would come directly under the control of the division commanders whom they served. In brief, this amounted to a more rigid subordination of some of their units to the line and ran counter to the hope of an absolutely independent air force.

Maj. Gen. Hanson E. Ely, who served as a member of the Lassiter Board, stated to students at the Army War College while commandant there, that he favored the idea of division aviation because it was his experience in France that the higher commander could always take units away from the subordinate commands, while the lower commander almost always had to beg for and frequently do without the services of units that belonged to higher echelons.

This reason is basic and covers many of the vital issues concerning division aviation and why it should be a part of and not attached to the division while in combat. However there are other aspects of the matter worthy of consideration.

From the airman's viewpoint it simplifies the problems of supply, maintenance, and coordination of air effort to

have the division squadron operating from the corps airdrome. Because of this it was contemplated having the division aviation, except under exceptional circumstances, operate from the corps airdrome, instead of attempting to work from a separate one in which only the division squadron would be housed. In this connection, it appears that if war in the air is to be carried on with the fury that aviators predict, safety for airdromes will lie, not in large congested landing fields in the combat area, but in widely scattered small airdromes that may be quickly shifted and easily concealed from aerial observation.

If the idea of division aviation is worthwhile, particularly in view of the fact that the above conditions may exist in any operation of magnitude, the inconveniences of supply, maintenance, and coordination of air efforts in widely scattered and small airdromes may be quickly overcome by proper effort. In fact the success of the air mail and the rapid expansion of commercial aviation is already familiarizing many of our people with airplanes and their operation. It may not be long before airplanes are so simplified that, like automobiles, anyone may operate them and it will not be a trained few who go out to brave the hazards of the air.

Another argument used against division aviation was the fact that when the division came out of the lines for rest, replacements, and additional training, the observation squadron and its photographic section might remain idle until the infantry and artillery of the division again came into action.

There are two matters to be considered in this respect. First, the main source of complaint from aviators against the infantry during the war was that individual riflemen never ceased firing on low flying airplanes, irrespective of whether they were our own or the enemies. The reason for this was the inability of officers to be at all places in the line of march and on the battlefield to control their men properly, and ignorance on the part of the men as to the markings and missions of the planes.

The men were ignorant of these matters because of lack of training, because during the period when they were in rear areas training for battle, they had little or no opportunity to work with friendly aircraft. This was usually because friendly observation squadrons were a part of the corps and generally were working with other divisions in the line. A great deal of this can be overcome by having the observation squadron work with battalions and regiments in simple problems of attack and defense where pyrotechnic signals are used, messages dropped, and front line marking panels frequently displayed. With such a program carried out, the period of training in rear areas should be about as busy a time for the observation squadron as when the units are in the line. It certainly will minimize if not entirely reduce the number of shots fired at random by infantrymen at their own low flying aircraft.

The second argument to be used against detachment of the observation squadron from the division while not in combat is the fact that the time is at hand with the development of attack airplanes and the progress being made in their tactics of raiding ground troops, when division aviation is needed to watch over columns on the march and to spread the alarm of attack by

enemy aviation, in order to give troops more time to take proper defensive measures. Experiments are constantly under way at the Infantry School and the use of division airplanes for this purpose is promising and most likely will be necessary should we become engaged in conflict.

Some of the infantryman's viewpoints on the divorcement of the observation squadron and its photograph section from the infantry division may be briefly summarized as follows:

*Violating* the principle of unity of command.

*Further* physical separation and lessening of personal contacts between parts of the combat team.

*Divisions* may not have the same squadrons attached to them each time they go into combat and additional time may be lost in getting acquainted.

*General* lack of familiarity between members of the combat team that will undoubtedly result in lack of teamwork on the battlefield.

*Difficulties* of the division commander in getting as good results from attached as from assigned units.

The principle of unity of command is so well established and so essential to success in battle that it needs no defense. One of the general complaints of the differences arising between the Air Corps and other branches, during the hearings before the Morrow Board, was that air fields throughout the country were so isolated from other military posts and activities that there was not enough personal contact between officers of that branch and other members of the service. This physical separation will be further increased in time of peace by the abolishment of division aviation and concentrating the observation squadrons in corps and army units.

It is a matter of common knowledge that a commander of troops on the battlefield relies on his own units more than on those attached to him, for the very good reason that through training and every day teamwork, the ties of discipline bind a little more closely than they do with the attached units. With the members of a unit that are a part of the commander's regular forces there is an immediate tomorrow as well as a today. The shirker and the alibi artist know that when the battle is over the "check up" will be in progress.

Is this so true with the members of the attached units? When the battle is over will they not be a part of another command and out of control of the division commander except through the indirect and unsatisfactory methods of administering discipline through the higher commander?

There were many complaints in France about observers turning in unreliable information, running gun battles with other aircraft, looking for air victories, and the like, when the performance of their observation missions were highly essential to the operation of ground troops. Yet to reach this type of air-joy-rider the division commander had to rely largely on corps and the hope that next time he would have better luck. The discontinuance of this condition was one of the things that the operation of division aviation on the battlefield, as an integral part of the division, promised.

The other Infantry viewpoints are

so familiar that further discussion is unnecessary.

It is to be hoped that the separation of the division squadron is only a temporary expedient, and that in combat it will be an integral part of the infantry division, and can be counted as much a part of the division team by the commander as he now counts the infantry, the artillery, and the engineers. The continued development of weapons and changes in tactical employment will require a team work between infantry, artillery, and airplanes that in the past has not been anticipated or required for success in combate.

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## Our War in Siberia

*From the Note Book of "General Experience"*

WHILE our principal forces were fighting in Europe, a comparatively small force of American troops were campaigning in far-off Siberia. Strangely enough, the real fighting in Siberia occurred after the Armistice. With the exception of an engagement near Ugolnaya on August 29, 1918, events were quiet until active operations were started against the Bolsheviks in April, 1919. The campaign lasted until the troops were withdrawn a year later.

The severe weather caused much hardship, and many a soldier had to have a frozen leg or arm amputated. Despite the blizzards, a splendid fighting spirit was demonstrated. In one regiment alone, the 31st Infantry ("The regiment on continuous Foreign Service") sixteen men won Distinguished Service Crosses, and one soldier won the coveted Medal of Honor.

# Was Joffre a Great General?

H. A. DeWeerd, Dept. of History, Denison University

*Marshal Joffre may be and doubtless is a great general, but he looks like a simple old peasant—or even a padre who had let his mustache grow and put on some red trousers.*

Major-General J. G. Harbord, U. S. A.

MARSHAL Joseph Jacques Cesaire Joffre, whose name is associated with the command of the French armies in the first critical years of the World War, is a figure around which sharp controversy rages. One group of writers lauds him as a military genius who snatched victory out of defeat, another describes him as an awkward blunderer whose faulty military knowledge and rash judgement brought not only France but the whole Entente to the brink of irretrievable disaster.

The first Marshal of the Third French Republic was born on January 12, 1852, at Rivesaltes, near the Pyrenees, the first of eleven children. The war of 1870 interrupted the studies of young Joffre at L'Ecole Polytechnique, and he laid aside his books to serve in a fort defending Paris. Like his great contemporary Lord Kitchener, who also served in the war of 1870, Joffre's interests led him into the field of engineering, and he found active employment in the colonies. Early in his professional career, Joffre became distinguished for his coolness in the face of dangers and difficulties. While in charge of the construction of a railway in Senegal, Joffre made himself famous overnight by conducting a march under most trying circumstances from Segou to Timbuktu. Two columns, one under Colonel Bonnier, and the other under Major Joffre, were to march on Timbuktu. The fierce Touareg tribesmen cut Bonnier's column to pieces and killed the leader, but Joffre, whose force received the relics of Bonnier's command, calmly decided to push on. The unsophisticated Touaregs were bewildered by this audacity, and did not molest his force. After Joffre made his force secure, the French government rewarded him by appointing him lieutenant colonel and officer of the Legion of Honor. Joffre later served in Madagascar under General Gallieni and constructed the military base at Diego-Saurez.

In 1905 Joffre was made general of division, and five years later while acting as commander of the II Corps at Amiens, he was appointed to the Conseil Superieur de la Guerre, which was composed of officers who would occupy important commands in time of war. General Joffre was placed in charge of lines of communication.

Far-reaching changes were effected in the higher organization of the French army in the year 1911. Previous to this time the Vice-President of the High Council automatically became commander-in-chief upon the outbreak of war. But due to the make-up of the council, this official had little control over appointments and promotions, and was thus deprived of the right to select the officers who would serve under him in event of war. Colonel Messimy, Minister of War in 1911, profoundly distrusted the military qualifications and strategic

concepts of General Michel, the Vice-President of the High Council. Messimy, therefore, succeeded in securing the resignation of Michel, appointed Joffre in his place, and took steps to abolish the office of the chief of staff.[1] He thus brought under the control of the man who would command the armies of France in war, the selection of his own advisers and the strategical preparation for the coming war. Joffre's two rivals for the position were Generals Pau and Gallieni, but both of these men were approaching the retirement age; and Gallieni, who had assisted in securing the resignation of Michel, honorably refused to profit by this action. Assisted by General de Castelnau and an entourage of younger officers, Joffre made plans for Armageddon. On April 18, 1913, he laid before the Conseil Superieur de la Guerre the famous Plan XVII.

One of General Michel's ideas about the coming war with Germany was that the enemy would attempt to invade France by way of the left bank of the Meuse River, and would execute a turning movement on a huge scale, entailing the deployment of twenty regular and twenty reserve army corps. In order to meet the proposed German thrust, Michel urged the establishment of a reserve army corps behind every regular French army corps. Thus France would be able to meet the German threat with an equality of forces in the western theatre. Colonel Messimy and other officers at the Conseil Superieur de la Guerre did not accept Michel's analysis of the situation, but were inclined to place confidence in the figures of German strength given by General Buat in an anonymously printed pamphlet entitled *La Concentration Allemande*. General Buat claimed to have found a copy of the German army orders in a railway carriage, which showed that Germany planned to invade France with a force of twenty-two army corps. The French high command believed that a considerable portion of the German forces would be made up of second line troops for occupation purposes only. Their mis-conception of the strength of the German blow was thus rendered all the more glaring.[2] The French high command refused to believe until that last minute that Germany would invade France with any heavy force by way of the left bank of the Meuse. Devotion to this idea nearly brought about the defeat of the Entente.

## II

General Joffre had few qualifications for his exalted office. He had never commanded a large body of troops in action or manuevers, and his training had been chiefly along technical lines. Colonel Messimy, who later regretted the appointment of Joffre, declared that it was General Berthelot who actually commanded operations, and not Joffre. General Joffre was a heavy, slow, stolid man, and seemed dominated by his entourage of younger officers. General Ruffey asserted that Joffre "listened with complacency to their views, which were often childish." Joffre's own testimony before the *Commission sur la Metallurgie en France* shows that he was hopelessly confused on many essential points of Plan XVII. Tormented and confused by the questions of the commissioners he snapped out in irritation saying, "You

[1] Formally abolished January 20, 1912.
[2] Germany actually employed thirty-four army corps in the West.

are asking me a bundle of things about which I know nothing."

The idea dominant in the French plan of war was that of an offensive *brutale et à outrance.* Stimulated by the fiery prophet of the offensive Colonel (later General) Loyseau de Grandmaison, the French high command hoped by a vigorous and brutal offensive to throw the German plan of concentration out of order and to win a speedy victory. Everything in the French plan was sacrificed to make possible an instant powerful offensive movement. Some of Grandmaison's maxims which were blindly accepted by the younger French officers make queer reading. He declared, "In the offensive, imprudence is the best safeguard. The least caution destroys all its efficacy." Misled by these concepts, the French were prepared to throw their forces at the Germans in a wild and unguarded rush, hoping by the brutality of the stroke to confuse the Germans and envelop them. The plan disregarded the natural difficulties of the terrain, the overwhelming superority of the Germans in machine guns and artillery, and the numbers and strength of the German reserve divisions. The failure of the plan exposed to enemy occupation the rich and vital mineral area of the Briey. The loss of this area caused France to conduct an investigation at the end of the war to determine why the area was lost. The report published by the commitee of investigation *(Le Rapport de la Commission sur la Metallurgie en France)* throws much light upon the regime of Joffre at the High Council and "pitilessly exposes the deformities of Plan XVII."

Although Joffre seemed at first to have few qualifications for his important post, his well-known Republican sentiments and his refusal to mingle politics and war put him above attack on that basis. In the proprietor of *La Dépêche de Toulouse* he had a firm friend who consistently supported him in the columns of that important newspaper. Joffre's self-confidence and infectuous tranquility in moments of danger have become legendary. He refused to become excited until men began to wonder in what way this tranquility was distinguishable from insensibility. General Lanrezac, who commanded the Fifth French Army in 1914, writing in the *National Review* for March, 1921, gives an interesting picture of the meeting of Joffre with his army commanders on August 3, 1914. General Dubail who commanded the First French Army, got up and asked for strong forces to cover his right flank on the proposed advance toward Strasbourg. Joffre listened gravely and said simply, "That is your plan, not mine." Dubail, thinking that Joffre had misunderstood, repeated his request and explained his situation fully. Joffre smiling paternally, answered in exactly the same words. Lanrezac records that there was general embarrasment and that officers stopped after the meeting to ask if he thought that Joffre had some plan up his sleeve. Lanrezac answered, "Yes," but admitted that his mind was clouded with a doubt.

After the political gesture of a retirement of ten kilometres behind the frontier had assisted in rallying public sentiment in England to the side of France, Joffre's armies swept forward into Lorraine.

The French infantry marched into battle conspicuous on the horizon in their red breeches and blue coats; their

artillery officers in black and gold were even more sharply defined targets. The doctrine of the offensive, raised to the height of religious frenzy, animated all ranks, and no rank was restrained by any foreknowledge of the power of magazine rifles or machine guns. A cruel shock lay before them. The Third French Army, marching toward Arlon, blundered into the Germans in the morning mist of August 22, four or five of its divisions having their heads shorn away while they were still close to their camping ground. The collision was general along the whole battle front, and there was universal recoil. In the mighty battle of the Frontiers, the magnitude and terror of which is scarcely known more than 300,000 Frenchmen were killed, wounded, or made prisoners.[3]

The battles of the Frontier are an unhappy memory to the French people. Their losses were extremely heavy, their gains inconsequential, and, what was more, their whole strategic creed collapsed before the inhuman effectiveness of the German machine guns. With the certainty of doom the great German war machine began to roll through Belgium into France.

III

So within a fortnight of the assumption of operations, the strategy of the French high command had broken down at every point. Joffre and his officers were proved to be deceived as to the nature of German plans in the north. Faced with the collapse of his whole plan, Joffre appeared unmoved; without the least heroics or hysteria he calmly planned a long retreat, speaking vaguely about assuming the affensive at a favorable time.

In the cold light of after study it appears that the only brilliant episodes in the otherwise dismal beginning of the war for the Entente were the feats of arms performed by Joffre's subordinates in direct disobedience to his orders. He commanded General Sarrail to retreat and expose Verdun; Sarrail disobeyed, saved the fortress and the pivotal position in the line. He ordered de Castelnau to abandon the Grande Couronne at Nancy; the later refused to comply and clung tenaciously to it. Joffre insisted that Lanrezac put his head into the German noose at Charleroi; the commander of the Fifth French Army disobeyed, saved the army, and was dismissed for his pains.

On August 25, Joffre informed his army commanders of a future offensive movement and that he was forming a new army group for this purpose at Amiens.[4] This demonstrates a weird grasp of the situation, for a knowledge of the position of the armies in the field shows that a French army based on Amiens (when it was ready) could strike out most manfully and hit only thin air. Finally, when General Gallieni, Military Governor of Paris, divined a change in the direction of the German march and wanted to attack their flank, he had a difficult time to get Joffre to accept the plan which made possible the victory at the Marne. Gallieni, who was largely responsible for the appointment of Joffre, was rewarded at the moment of victory by having the Sixth French Army, which had struck the vital blow, taken from under his command, and being forced to watch helplessly while Joffre and his officers threw away the advantage they had obtained over the Germans. The French high command, by its dil-

[3] W. S. Churchill, *The World Crisis 1916-1918*, Vol. I—pp. 8-9.
[4] General Order No. 2, August 25, 1914.

atory tactics always found itself "twenty-four hours and an army corps behind the Germans in the race to the sea."

Even after the lines of entrenchments reached the sea and Switzerland, Joffre's equanimity was not disturbed; his paternal optimism was as great as ever. He looked to the Russians for great things and felt with Sir John French that a single strong push against the German lines might effect a rupture. At no time during the war did he allow the tension of the military situation to interfere with his well-appointed hours for rest. Promptly at ten o'clock Joffre retired for the night and locked himself in. No one at general headquarters dared to knock at the oaken door to his bed room at Chantilly unless the matter for consideration was of utmost urgency. Not once, when other men were turning away from food in the midst of the first disasters, did Joffre's appetite fail him. He looked like "a padre who had let his mustache grow and had donned red breeches;" he never seemed too busy to see a visitor. If he did not fully comprehend the military situation in the first days of the retreat, at least he looked as if he did. His visits to local army commanders always restored confidence; the most desperate tales of the local officers made no impression whatever on the heavy, white haired commander-in-chief. He could listen to a long report and speak at the end as if he had heard no word of it. To an officer who had delivered a long report on the need for heavy artillery and who expected a weighty opinion from the commander-in-chief, Joffre merely said, "You have always loved your guns. That is good." After an officer on mission with the English had given him an important report, Joffre answered, "You are with the English. Once they were our enemies, now they are our best friends. It is strange." Needless to say, men left the office of the commander-in-chief puzzled and often with grave misgivings. If an interview pleased him, Joffre would present his visitor with a pipe inscribed, *"Souvenir du General en Chef J. Joffre"* and dismiss him with a pat on the back. If the interview was unpleasant Joffre would rub his ponderous head and murmur the familiar, "Pauvre Joffre."[5]

In the spring and early summer of 1915 Joffre threw his armies at the German lines in Champagne and Artois, but achieved only local successes. Again in the autumn and winter he tried to break through the Champagne while the British struck at Loos. There could be no complaint of the valor of the soldiers of France; they advanced heroically. But a few machine guns firing from emplacements nullified the magnificent resolution of hundreds of gallant men. Barbed wire which had to be destroyed by prolonged artillery fire killed surprise, while a German elastic system of defense enabled the French to capture one line of trenches and always be faced with heavier resistance. Outrageous prices were paid in flesh and blood to take a series of trenches. For the capture of a ridge of high ground at Les Eparges twenty thousand men were lost. Failing to make headway with his attacks of unlimited objectives, Joffre decided to nibble his

[5] Charteris—*Field Marshal Earl Haig*, page 200.

way to victory. The entourage of younger officers who had temporarily lost face through the outcome of the battle of the Frontiers, now rallied behind the program of "nibbling." Officers in the service who did not fall into the scheme of things soon found themselves at Limoges—without commands. Jean Pierrefeu, who drafted the official communications at general headquarters, describes the ascendency of this cabal of officers over Joffre. He writes:

I knew most of the members of this camarilla at Chantilly. I know what a careful watch they kept over their chief; I know what cunning strategy they employed to gain their ends, what a system of steady pressure they employed, what persuasive efforts they put forth to make the general—often rather rebellious—perform such and such an act. [6]

As a result of General Joffre's decision to nibble the Germans, the Allied forces on the western front were committed to a series of costly and sterile offensives with strictly limited objectives. The failure of the Allied high commands to achieve more tangible results in the early offensives was laid to shortage of shell and artillery. The mystic high priests of the offensive who once essayed to conquer machine guns with naked spirit, now wanted so many shells per yard of territory to be conquered. A new maxim rang out, "Artillery conquers a position; infantry occupies it."

The number of pieces of artillery considered necessary to demolish the fortifications and break down the hostile resistance grew larger every day. In this, reason was no longer a guide: we positively wallowed in triumphant absurdity; a thousand rounds from a 75-mm. to cut a gap of 25 metres in a wire entanglement; eight hundred rounds from a long 155-mm. gun to destroy a hostile battery at a range of eight kilometers * * *. Ballistics pushed to such a point of perfection had pitiable results. [7]

Masses of French artillery found themselves opposed by growing masses of German artillery, and nibbling was found to be unproductive of anticipated results. While Joffre nibbled, the Germans were withdrawing troops from the west and destroying Russia.

IV

In addition to the failure of the Entente to penetrate the German defenses in the west, a number of other circumstances combined to weaken the confidence of the government of France in the commander-in-chief. The first of these circumstances was Joffre's attitude toward General Gallieni, whose services as military governor of Paris contributed so uniquely to the successful issue of the First Battle of the Marne. There was glory enough for two in the victory, but in order to silence a legend which was growing up about Gallieni's services, Joffre issued an army order with a citation September 25, 1915, in which he diminished with faint praise the actions of the Military Governor of Paris. Many men in high station who were aware of Gallieni's decisive action, turned away from Joffre. Prime Minister Clemenceau on Armistice Day, 1918, corrected the impression circulated in Joffre's citation by declaring, "Without Gallieni the victory would have been impossible."

Shortly after the publication of the offensive army citation, Gallieni was

[6] Pierrefeu, *Plutarch Lied*, page 43-44.
[7] Pierrefeu, *Plutarch Lied*, page 175.

made minister of war in the Briand cabinet of October, 1915. But instead of taking out his greviences on the commander-in-chief, Gallieni treated Joffre in an exemplary fashion, and defended him before the chamber of deputies. Gallieni supported Joffre until the latter's action at Verdun made further support impossible.

While Joffre and Haig were planning the campaign of 1916, Falkenhayn and the German general staff were preparing a series of gigantic hammer strokes at the fortress area of Verdun in an attempt to shatter the morale of the French people. Intelligence of the coming attack reached general headquarters, but Joffre, immersed in his own plans, paid little heed. In December, 1915, Colonel Driant, a deputy from Nancy serving at Verdun, was heard before the army commission of the chamber of deputies. Driant told them of the relatively inadequate defenses of the area and that General Dubail had withdrawn most of the guns and machine guns from the forts. Gallieni, who was convinced of the integrity of Driant, asked Joffre in a letter dated December 16, 1915, about the state of the defenses of Verdun. Joffre was piqued at this slight on his management of the war and answered in a letter on December 18, 1915, which did not conceal his irritation. He blustered that the defenses were properly constituted, and threatened resignation if the Government continued to be concerned with unofficial reports. As a result little or nothing was done on the defenses of Verdun until after General de Castelnau returned from Salonika in January. On a trip of inspection to Verdun, Castelnau found the defenses utterly inadequate, and took immediate steps to repair them. But before the work could be finished, the German massed artillery lashed out in fury and the German infantry walked into Fort Douaumont. Driant perished with thousands of others on the flame-swept ridges, vindicating his ideas about Verdun.

As the German attack continued with relentless energy, and as the situation at Verdun daily grew in menace, the French political world became convinced that Joffre had written his surly letter to Gallieni on December 18, 1915, without a knowledge of the actual state of affairs at Verdun. The confidence of the government in the commander-in-chief appreciably diminished. Prime Minister Briand was convinced, however, that the public good demanded the retention of Joffre, and he brought the full force of his matchless political dexterity to the defense of the commander-in-chief. General Sarrail, Joffre's radical rival, was sent to Salonika, and his position was made more secure when Gallieni resigned and General Roques became minister of war.

Joffre might have retained his position had it not been for the disappointments which came to the French people as a result of the long drawn out and costly battles of the Somme. After three years of leadership Joffre's strategy seemed productive only of optimistic pronouncements and huge casualty lists. His slow wearing-down tactics were not suited to the habits of French temperament, which had been profoundly stirred by the brilliant exploits of a young army commander at Verdun, General Robert Nivelle. This commander had engineered a surprise attack at Verdun, and with astonishing ease and small

casualties had ripped Fort Douaumont from the hands of the Germans. Here was a commander and here a method of war admirably calculated to strike a vigorous response in the hearts of the French people. No more nibbling, but one huge stroke like Nivelle's small one, and the war would be ended. Joffre's days at Chantilly were numbered. On December 13, 1916, a presidential decree gave him the high sounding title of Technical Adviser to the Government on the Conduct of the War. But when the new minister of war, General Lyautey, arrived from Morocco, he naturally refused to accept a situation in which Joffre acted as Technical Adviser to the Government, since in his opinion that was the function of the minister of war. From this position Lyautey would not move. It was therefore necessary to confer the title of Marshal of France upon Joffre, and with this empty honor he was removed from active control over military affairs.

V

In judging the generalship of General Joffre, it is necessary to recall that the World War provided startling upsets for all belligerents. It must be said that Joffre's plan of warfare failed completely, was founded upon false assumptions as to German strength terrain and the effectiveness of modern weapons. Confronted by the collapse of his whole plan, Joffre maintained his equilibrium, and saved his face and the Allied cause at the Marne. That is more than the German commander von Moltke did; and if the French high command blundered, the Germans outdid them in this matter. Joffre's imperturbability, whether it arose from insensibility or courageous resolve, was one of the factors that made the marvelous recovery of the Allied armies possible. If he did not conceive the plan which made the first victory of the Marne possible, at least he bore the full responsibility for operations and is entitled to the honor that goes with it. He erred consistently on the side of optimism and committed the Allies to a series of futile early offensives on the western front. He was not consistent in his support of the western theatre as Robertson and Haig were, but in order to better his position supported the Salonika expedition which he had formerly opposed. Although he may have acted in a regrettable manner to provide for the defense of Verdun before the German attack, once the battle was joined Joffre was adamantine in the defense. While the Germans were hammering at Verdun, Joffre with a breadth of view which was all too rare, calmly went ahead with plans for the Allied offensive on the Somme. As Brigadier-General Charteris said, "this required a breadth of view, a detachment from a purely national outlook, which none but a great commander could show." Those who too harshly condemn Joffre for his many shortcomings should remember the comfort and security that his great character gave the French people at the critical moment of their history. As Captain B. H. Liddel-Hart asserts, if Joffre was not a great general, at least "he was a national nerve sedative."

# Retrospect[1]

## A Condensed Review for the Busy Reader

MAJ. FRANK B. JORDAN, Field Artillery

## MURFREESBORO

AFTER the battle of Shiloh both armies remained quiet, recuperating from the effects of the two days' struggle. Halleck arrived at Pittsburg Landing and took command in person, and Pope's force was ordered east from Island No. 10. The latter arrived at Pittsburg Landing, April 21, and within the next two days Beauregard ordered Van Dorn to join him from Memphis "without delay." The Union forces executed several raids and reconnoissances, and late in April, Beauregard urged Van Dorn to hurry up his forces, as indications pointed to an early Union advance on Corinth.

### CORINTH

Halleck finally moved on April 30. His force was reorganized into right, center, left, and reserve, with Thomas, Buell, Pope, and McClernand respectively commanding. Grant was assigned as "second in command." Halleck's strength, in round numbers, was approximately 120,000, but by now Van Dorn had brought up his forces from Memphis, giving Beauregard an approximate strength of 87,000.

Halleck moved cautiously, his three columns converging on Corinth about the middle of May. Thomas was on the right, Buell in the center, and Pope on the left. The army corduroyed roads and intrenched as it went, and gave the watchful Beauregard no chance to attack it in detail. During this time General Bragg had assumed command of the Army of the Mississippi, while General Rosecrnas had been assigned to a command under Pope. Finally, on May 29, after spirited skirmishing, Beauregard decided to abandon Corinth to the superior forces of Halleck rather than risk a decisive fight. The evacuation was well planned and executed, as up to the morning of May 30 Halleck expected to be attacked. Some property loss occurred on the Confederate side, but from a tactical point of view very small advantage accrued to Halleck. Some attempt was made at pursuit, but Beauregard retreated practically without molestation to Tupelo.

### AFTER CORINTH

During the month of June the Union forces occupied Fort Pillow, Memphis, Jackson, and sent a force to attack Chattanooga. The latter attempt, however, proved abortive, and only served to attract the attention of the Confederates to East Tennessee. Bragg meanwhile had superseded Beauregard, and Rosecrans had taken over Pope's command when the latter was ordered to Virginia.

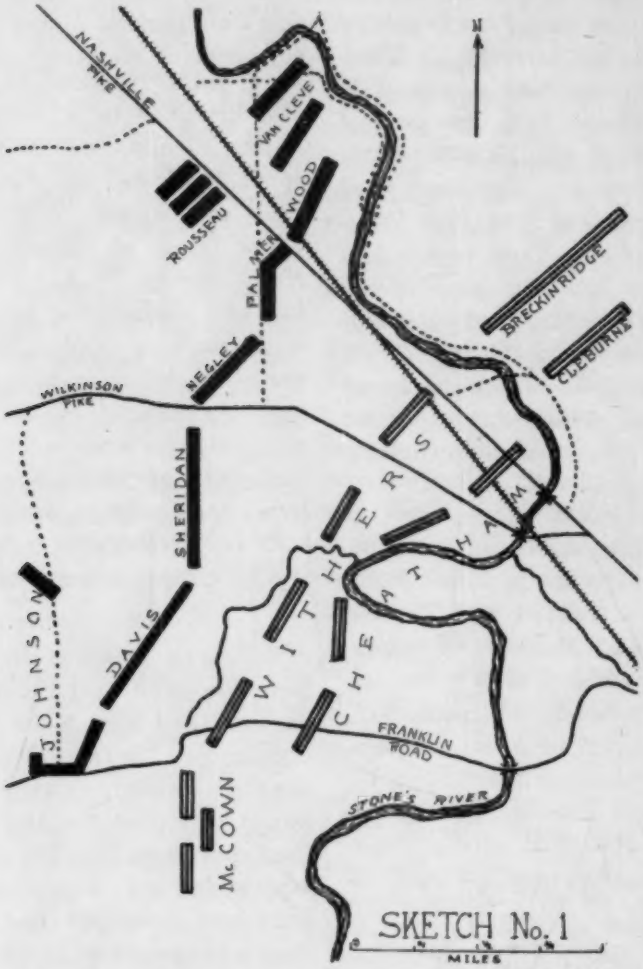
Buell, with the Army of the Ohio, had been ordered early in June to move on Chattanooga. He was hampered, however, by orders to rebuild

[1] The reader is referred to the introduction to the first article of the series, Page 238. INFANTRY JOURNAL for September, 1928.

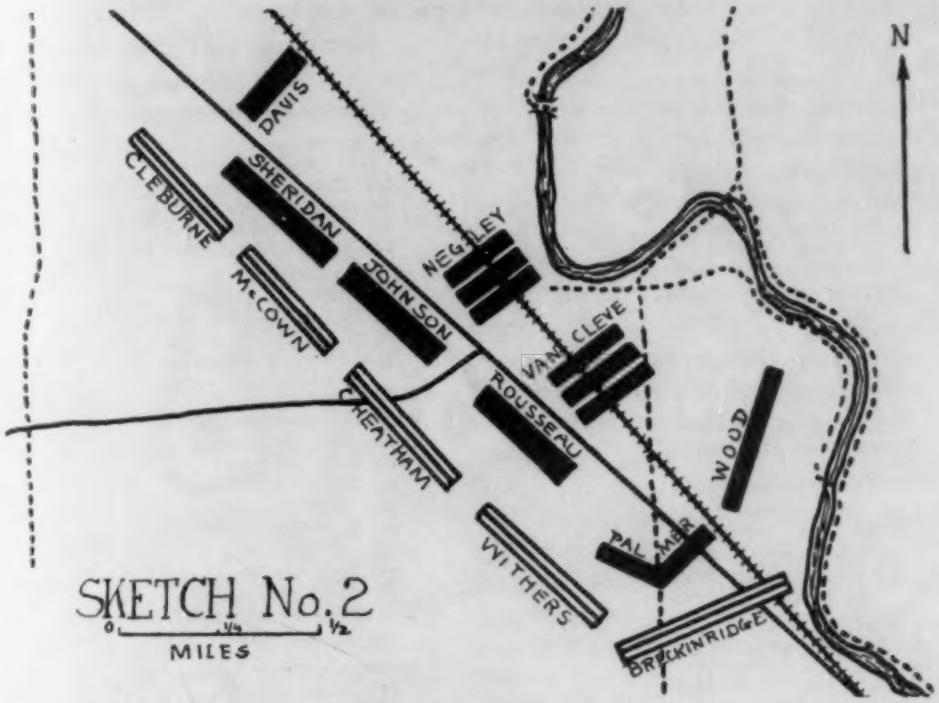
the railroad as he went, so that Bragg had time to reach that town ahead of him, although the army of Bragg was not ordered to move from Tupelo until July 21. Halleck had been ordered on July 11 to Washington to assume command of the Armies of the United States, and Grant had succeeded him in the west. Buell's advance was hampered by the operations of the Confederate cavalry under Forrest and Morgan, who broke up his depots and cut his communications time and again. But a much more important event was to deflect him from Chattanooga for the present.

### INVASION OF KENTUCKY

Early in August, Kirby Smith, who was at Knoxville with about 18,000 men, agreed with Bragg on an invasion




of Kentucky. Smith crossed the Cumberland Mountains into Kentucky on the sixteenth, and Bragg started his forward movement on the twenty-seventh. Smith pressed on into Kentucky, and on August 30, encountered a Union force under Nelson, and com-




pletely routed them near Richmond, Ky. Continuing on, he occupied Lexington, where on September 2 he established his headquarters.

Bragg, moving under cover of the Cumberland Mountains, struck directly at Buell's communications. The latter had concentrated around Murfreesboro to cover Nashville, and when Bragg moved into Kentucky Buell shifted his force to Bowling Green. About the middle of September Bragg captured Munfordville, which placed him between Buell and Louisville. After a pause of several days Bragg moved to the east to join Kirby Smith, and Buell pushed on to Louisville.

#### PERRYVILLE

Buell moved forward again October 1, with the intention of attacking Bragg at Bardstown. The opposing forces came into partial collision near Perryville, where a drawn battle occurred on the eighth. Tactically it was a Confederate success, but as they withdrew that night it had no practical results. Bragg paused at Harrodsburg; Kirby Smith joined him on the tenth, and the Confederates finally withdrew into East Tennessee. Buell followed as far as London (Ky.), and then transferred his forces again to Bowling Green, where on October 24 he was superseded by Rosecrans. The actual transfer of command took place on October 30.

#### AFTER PERRYVILLE

During the next two months the opposing forces in the area under discussion spent most of their time in minor operations, and in refitting and reorganizing their respective forces. Rosecrans concentrated his army around Nashville, while Bragg had

## OPPOSING FORCES

### UNION

*Army of the Cumberland*
(Maj. Gen. Wm. S. Rosecrans)

*General Headquarters* ..... 2,100

RIGHT WING (McCook)

*1st Div.* (J. C. Davis) ..... 4,500
1st Brig. (Post)
2d Brig. (Carlin)
3d Brig. (Woodruff)

*2d Div.* (R. W. Johnson) ..... 5,500
1st Brig. (Willich)
2d Brig. (Kirk)
3d Brig. (Baldwin)

*3d Div.* (Sheridan) ..... 4,800
1st Brig. (Sill)
2d Brig. (Schaefer)
3d Brig. (Roberts)

CENTER (Thomas)

*1st Div.* (Rousseau) ..... 10,800
1st Brig. (Scribner)
2d Brig. (J. Beatty)
3d Brig. (Starkweather)
4th Brig. (Shepherd)

*2d Div.* (Negley) ..... 5,400
1st Brig. (Spears)
2d Brig. (Stanley)
3d Brig. (J. F. Miller)

*3d Div.* (Fry) ..... 8,700
1st Brig. (Walker)
a2d Brig. (Harlan)
a3d Brig. (Steedman)

*a4th Div.* (Mitchell) ..... 5,300
1st Brig. (Morgan)
2d Brig. (McCook)

*a5th Div.* (Reynolds) ..... 8,400
1st Brig. (Hall)
2d Brig. (A. O. Miller)

LEFT WING (Crittenden)

*1st Div.* (Wood) ..... 5,600
1st Brig. (Hascall)
2d Brig. (Wagner)
3d Brig. (Harker)

*2d Div.* (Palmer) ..... 4,800
1st Brig. (Cruft)
2d Brig. (Hazen)
3d Brig. (Grose)

*3d Div.* (Van Cleve) ..... 3,900
1st Brig. (S. Beatty)
2d Brig. (Fyffe)
3d Brig. (Price)

CAVALRY (D. S. Stanley) ..... 5,100
*Cav. Div.* (Kennett)
1st Brig. (Minty)
2d Brig. (Zahm)
*Reserve Cav.* (3 regts.)

TOTALS ..... 74,900
Guns ..... 144*

* Estimated a Detached.

### CONFEDERATE

*Army of Tennessee*
(General Braxton Bragg)

*Polk's Corps* ..... 19,400
*1st Div.* (Cheatham)
1st Brig. (Donelson)
2d Brig. (Stewart)
3d Brig. (Maney)
4th Brig. (Vaughan)

*2d Div.* (Withers)
1st Brig. (Loomis)
2d Brig. (Chalmers)
3d Brig. (Anderson)
4th Brig. (Manigault)

*Hardee's Corps* ..... 22,800
*1st Div.* (Breckinridge)
1st Brig. (Adams)
2d Brig. (Palmer)
3d Brig. (Preston)
4th Brig. (Hanson)
J. K. Jackson's Brig.

*2d Div.* (Cleburne)
1st Brig. (Polk)
2d Brig. (Liddell)
3d Brig. (B. R. Johnson)
4th Brig. (Wood)

*McCown's Div.*
1st Brig. (Ector)
2d Brig. (Rains)
3d Brig. (McNair)

*Cavalry* (Joseph Wheeler) ..... 9,300
Wheeler's Brig.
Buford's Brig.
Pegram's Brig.
Wharton's Brig.

*Artillery* ..... 300
3 btries.

TOTALS ..... 51,800
Guns ..... 104*

* Estimated

moved via Knoxville and Chattanooga to Murfreesboro. Gen. Joseph E. Johnston had assumed general command of the Confederates in the West on Dec. 4, and Rosecrans was being urged, under pain of relief from command, to attack Bragg. This he refused to do until he had sufficiently secured his new base at Nashville, which rendered him practically independent of the railroad between that place and Louisville. Finally, however, on December 26 Rosecrans began his forward movement with a view to attacking Bragg at Murfreesboro.

PRELIMINARY OPERATIONS

Rosecrans planned an advance in three columns on Murfreesboro. McCook, with three divisions, was to move via Nolensville to Triune, and attack the Confederate forces reported to be in that vicinity. Crittenden with three divisions was to march via the main pike on Murfreesboro, attacking whatever force he encountered. Thomas, with two divisions, was to move on McCook's right, prepared to support him or to co-operate with Crittenden, according to where the main Confederate force developed. Three divisions (less one brigade) were left behind on garrison duty.

The Union columns moved on December 26 as planned, and though heavy skirmishing marked all the movements, by dark Crittenden was at LaVergne, McCook at Nolensville, and Thomas closed in on McCook's right and rear. At this time the main elements of Bragg's force were on the general line Readyville—Murfreesboro—Eagleville, with cavalry covering their front and flanks. Upon his cavalry reporting the Union movements, Bragg at once issued orders for a concentration in the vicinity of Murfreesboro.

On the twenty-seventh the gray columns were converging on Murfreesboro. McCook advanced on Triune, but his progress was hampered by a dense fog, and on arrival he found that the Confederate forces had withdrawn toward Murfreesboro. Crittenden, delayed by cavalry supported by infantry, reached Stewart's Creek in time to save the bridge there, while Thomas detached one division to Crittenden and the other to support McCook.

On the twenty-eighth (Sunday), the bulk of the Union forces rested, while the Confederates completed their concentration at Murfreesboro. Bragg took up a defensive position just northwest of the town, with the west fork of Stone's River separating his two wings. This stream was fordable at all points except after heavy rains, and did not constitute a serious military obstacle. Hardee was on the right, with Breckinridge and Cleburne in first and second line; Polk formed on the left, with Withers and Cheatham in first and second lines respectively; McCown's division (Kirby Smith's Corps) was held in reserve in rear of the center.

On the twenty-ninth Rosecrans continued his forward movement. Crittenden advanced to within three miles of Murfreesboro, where, finding the Confederates in heavy force in his front, he halted for the night. McCook reached Wilkinson's Crossroads by dark, with his advance elements guarding the bridge over Overall Creek. Rousseau's division was left at Stewart's Creek to cover the forward movement of trains. Bragg, observing

that the Union movements threatened his left flank, moved McCown over to the left and attached his division to Polk's corps.

The thirtieth saw the completion of Rosecrans' concentration. McCook moved up and connected with Thomas by 4:00 P. M., after heavy skirmishing all the way. Rousseau's division was closed up from Stewart's Creek and held in reserve near the pike. Bragg expected an attack on this day, but it did not materialize, due to the Union forces not having completed their dispositions. Rosecrans met with his corps commanders (except Crittenden, who was excused) that evening, and explained his plans. During this meeting McCook was advised to refuse his line more and face nearly south, but the final decision was left to him, as he had fought over the ground that day, and was familiar with it. At dark December 30 the situation was generally as shown on Sketch No. 1.

### THE BATTLE

Rosecrans and Bragg both evolved the same general "scheme of maneuver" for their plans of battle. Both contemplated a "holding attack" on the right and center, while making the "main effort" against the hostile right flank. Rosecrans proposed to hold on the right with McCook, and in the center with Thomas, while the divisions of Van Cleve and Wood were to cross the river and attack the Confederate right. Bragg, on the other hand, planned to hold with Breckinridge on the right, while throwing the divisions of Cleburne and McCown, under command of Hardee, against the Union right. Polk, in the center, was to take up the attack as soon as launched by Hardee, the whole to swing to the right with Polk's right as a pivot.

### DECEMBER 31

Van Cleve and Wood (12 bns.) moving early, crossed the river and advanced against Breckinridge's division (10 bns.). About the same time the attack of Hardee's two divisions (17 bns.) struck McCook's right flank, where the brigades of Willich and Kirk (4 bns.) were driven back in some confusion. Hardee followed up his initial success, and attacked the division of Davis (5 bns.), and after a lively fight drove it back also. Polk (24 bns.) now swung into the fight, the main force of his blow falling on Sheridan's division (6 bns.). But by this time Rosecrans had suspended the movement of Van Cleve and Wood, and was hurrying up Rousseau's division (13 bns.) to the support of McCook. The former deployed to the right rear of Sheridan, and succeeded in momentarily stemming the victorious advance of Hardee. Rosecrans now ordered Van Cleve and part of Wood's division (8 bns.) up to the assistance of Rousseau; meanwhile Sheridan was attacked vigorously four different times, and his line slowly forced back until he was roughly in prolongation of Rousseau's left. Negley (6 bns.) was also forced back with Sheridan, but the whole line finally stabilized temporarily in the woods north of the Wilkinson pike.

About the middle of the morning Bragg had requested two brigades from Breckinridge to re-inforce Hardee, but had been informed by that officer (Breckinridge) that he could spare no force, as the Union forces were across the river and about to attack him. After several messages had been ex-

changed, and it developed that the Union troops (Van Cleve and Wood) had withdrawn, Breckinridge finally started to the south with three of his brigades (6 bns.), but arrived too late to assist Hardee. He was accordingly deflected to Polk, and took part in two unsuccessful assaults on the Union center and left. During this time Rosecrans was enabled to re-adjust his shattered right along the general line of the Murfreesboro pike, and there the gray wave was definitely checked shortly before dark. At this time the opposing forces were situated generally as shown on Sketch No. 2.

During the day Confederate cavalry had carried out several bold raids against the Union rear establishments and trains. During the night the Union left was withdrawn slightly, and two additional brigades came up. Van Cleve was relieved by one of them, and returned to his original position on the extreme left. After reconnaissance and consultation with his corps commanders, Rosecrans decided to hold his position the following day. Rations and ammunition were to be gotten up to the troops, and if the Confederates failed to attack him, he planned to resume the offensive himself.

JANUARY 1

Both sides remained generally inactive. The Union forces were consolidating their position, and the Confederates busied themselves removing the spoils of battle from the field. A fairly strong "demonstration" occurred on the Union right early in the afternoon, but, finding the line strongly held at all points, nothing serious came of it. Bragg did not "deem it advisable to attack" Rosecrans in his "present position," and the latter was biding his time. However, Van Cleve's division was pushed across the river again, and occupied the ridge covering the ford.

JANUARY 2

The morning passed with nothing of importance occurring except a desultory artillery duel. About the middle of the afternoon the Confederates seemed to discover Van Cleve's presence east of the river for the first time, and promptly massed against him. About 3:00 P. M. the whole division of Breckinridge (10 bns.) was launched against Van Cleve (5 bns.), and the latter driven across the river in some confusion. Crittenden massed his artillery on the west slope to cover Van Cleve's withdrawal, and Breckinridge, pushing on too recklessly, came under its concentrated fire and suffered severely. Part of Negley, Palmer, and Davis' divisions came to Van Cleve's assistance, and eventually Breckinridge fell back to his original line of December 31, and the Union forces reoccupied and intrenched the crests covering the fords.

JANUARY 3

During the night Cleburne was transferred back to the Confederate right, and Hardee resumed command on that flank. It rained heavily from 3:00 A. M. on, and the roads on the Union left became almost impassable. Picket firing and skirmishing occurred throughout the day. Delay in arrival of ammunition and condition of the roads made Rosecrans decide against an offensive that day; information received from captured returns, as well as the exhausted condition of his men, caused Bragg to decide to withdraw. Orders were issued about noon for the

withdrawal under cover of darkness, and the whole of the Confederate army was in motion by 11:00 P. M.

JANUARY 4

Rosecrans still was averse to resuming the offensive, but news was brought that Bragg had withdrawn during the night. The Confederate cavalry held Murfreesboro until the morning of the 5th, when it was occupied by the Union forces. Bragg withdrew to the general line of Duck River, while Rosecrans paused in Murfreesboro to rest and refit. The nature of the struggle may best be judged by the list of casualties given below.

CASUALTIES

| | *Union* | | | | *Confederate* | | |
|---|---|---|---|---|---|---|---|
| *Unit* | *K & W* | *M* | *Total* | *Unit* | *K & W* | *M* | *Total* |
| Post | 169 | 155 | 324 | Donelson | 683 | 17 | 700 |
| Carlin | 627 | 194 | 821 | Stewart | 397 | 2 | 399 |
| Woodruff | 211 | 47 | 258 | Maney | 185 | 8 | 193 |
| Willich | 463 | 701 | 1,164 | Vaughan | 669 | 38 | 707 |
| Kirk | 483 | 376 | 859 | Loomis | 586 | 5 | 591 |
| Baldwin | 303 | 209 | 512 | Chalmers | 512 | 36 | 548 |
| Sill | 469 | 200 | 669 | Anderson | 750 | 13 | 763 |
| Schaefer | 352 | 46 | 398 | Manigault | 501 | 16 | 517 |
| Roberts | 405 | 161 | 566 | Adams | 657 | 146 | 703 |
| Scribner | 222 | 57 | 279 | Palmer | 373 | 52 | 425 |
| J. Beatty | 293 | 96 | 389 | Preston | 442 | 97 | 539 |
| Starkweather | 33 | 113 | 146 | Hanson | 320 | 81 | 401 |
| Shepherd | 591 | 50 | 641 | J. K. Jackson | 303 | ... | 303 |
| Spears | 33 | ... | 33 | Polk | 328 | 19 | 347 |
| Stanley | 412 | 101 | 513 | Liddell | 589 | 18 | 607 |
| J. F. Miller | 551 | 97 | 648 | B. R. Johnson | 549 | 57 | 606 |
| Walker | 22 | ... | 22 | Wood | 391 | 113 | 504 |
| Hascall | 366 | 34 | 400 | Ector) | | | |
| Wagner | 348 | 32 | 380 | Rains) | 756 | 106 | 962 |
| Harker | 438 | 101 | 539 | McNair) | | | |
| Cruft | 271 | 126 | 397 | Wheeler | 83 | 84 | 167 |
| Hazen | 380 | 29 | 409 | Buford | 13 | 5 | 18 |
| Grose | 585 | 74 | 659 | Pegram | | No returns | |
| S. Beatty | 438 | 83 | 521 | Wharton | 151 | 113 | 264 |
| Fyffe | 317 | 240 | 557 | | | | |
| Price | 440 | 143 | 583 | | | | |
| Minty | 29 | 77 | 106 | | | | |
| Zahm | 62 | 59 | 121 | | | | |
| All others | 219 | 116 | 335 | | | | |
| Totals | 9532 | 3717 | 13249 | Totals | 9239 | 1027 | 10266 |

Air Corps has determined accurately ammunition upon the various parts

# Notes from the Chief of the Infantry

## Commissioned Personnel, Office Chief of Infantry

*Chief of Infantry*

MAJ. GEN. STEPHEN O. FUQUA

*Executive*

COL. LORENZO D. GASSER

*Section I—Personnel*
COL. C. C. ALLEN
MAJ. E. F. RICE
MAJ. L. S. HOBBS

*Section II—Intelligence*
MAJ. T. B. CATRON
MAJ. S. J. CHAMBERLAIN

*Section III—Training and Inspection*
LIEUT. COL. E. J. MORAN
MAJ. B. MAGRUDER
MAJ. C. H. BONESTEEL
CAPT. W. G. LAYMAN

*Section IV—Arms and Equipment*
LIEUT. COL. E. BUTCHER
MAJ. T. LAWRENCE
MAJ. J. D. PATCH
MAJ. H. TERRELL

*Section V—Mobilization and Organization*
COL. F. W. BUGBEE
CAPT. P. E. LEIBER

## Study of Effect of Infantry and Air Corps Fires

A BOARD of officers made up of representatives from the Infantry, the Air Corps, and the Ordnance Department has recently been appointed by the War Department to meet at the Infantry School, to determine the vulnerability of aircraft to various types of infantry fire and the physical effect of aerial attacks upon infantry troops. The infantry members of the board are Lieut. Col. Harry A. Wells and 1st Lieut. Joseph I. Greene, both from the Department of Experiment of the Infantry School.

Both the Infantry and the Air Corps, during the last few years, have conducted varied experiments and have engaged in extended study to determine methods and means of offensive and defensive combat in their respective spheres of activity, and of cooperation with each other. The Infantry, as a result of the experiments, has prepared and has had issued training instructions for riflemen and automatic riflemen, and similar instructions are now undergoing final inspection before issue for machine gunners. The experiments so far conducted by the Infantry have been aimed at developing methods and means to obtain hits on low-flying aircraft. Similarly, the experiments by the Air Corps have been conducted to obtain hits, on ground troops with machine guns and bombs. Neither the Infantry nor the

Air Corps has determined accurately the effect of these hits. To assist each arm in working toward a solution of the problems of infantry—air combat, it now becomes necessary to investigate the effect of all types of infantry ammunition upon the various parts and areas of airplanes, and the effect of the latest type of airplane weapons and bombs upon simulated infantry in different formations. The Board will conduct these investigations.

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# Caliber .30 Wheeled Mount for Machine Gun Companies

THE early issue of training instructions for machine guns in anti-aircraft combat brings forth the question of providing adapters and caliber .30 wheeled machine gun mounts (Matthews Carriage) for machine gun organizations in the Regular Army. Every effort is being directed towards the early equipment of Regular units with this material.

A decision has not yet been reached as to the adapter which will be utilized. A number of adapters are still under test by the Infantry Board. It is probable that funds will become available during the fiscal year 1931 for the manufacture of about 133 caliber .30 wheeled machine gun mounts. It is planned that, as fast as these are manufactured, at least one will be assigned to each Regular Army machine gun unit at present equipped with wheeled transportation. As manufacturing progresses, additional mounts will be distributed within the total allowance. Pending a decision as to the adapter which will be adopted, the mounts will be issued without the adapters. The adapters will be supplied later.

The caliber .30 wheeled machine gun mount has proven to be a very satisfactory article of machine gun equipment. During its use by the 29th Infantry, which is equipped throughout with the new mount, a number of improvements have been suggested and adopted. These improvements will be embodied in the new mounts to be manufactured during the fiscal year 1931.

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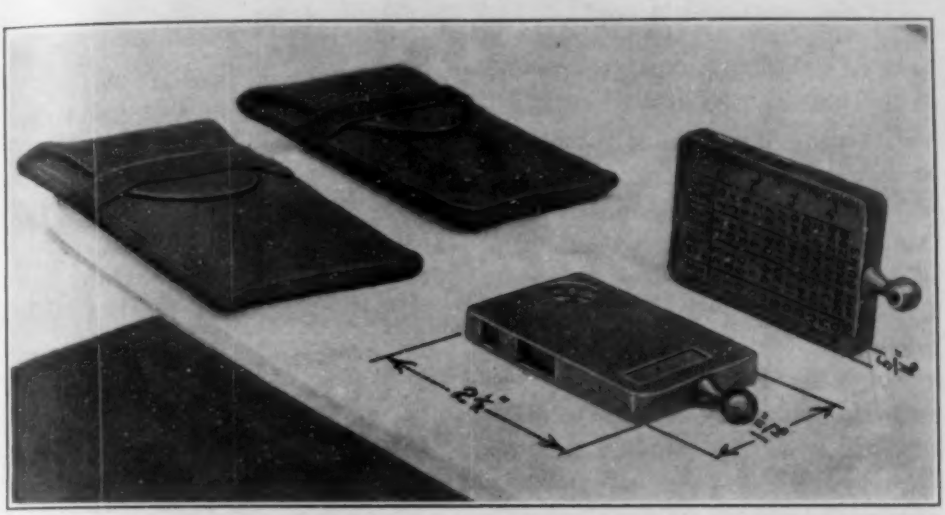
# Sitogoniometer Recommended for Machine Gun Companies

IN a test by the Department of Experiment, the Infantry School supervised by the Infantry Board, sitogoniometers displayed such advantages over the angle-of-site instruments with which machine gun organizations are now equipped, that the Chief of Infantry has recommended that they be made standard for manufacture and issue to machine gun companies. The



# Antiaircraft Combat



Two sitogoniometer and two leather cases. The dimentions in inches are also indicated. The data shown on the side of the right instrument pertain to artillery.

recommendation contemplates that these devices replace angle-of-site instruments, which will however be retained until the sitogoniometers are issued. The recommendation also contemplates that sitogoniometers will be issued in addition to aiming circles, which have previously been recommended for equipment of machine gun companies.

The sitogoniometer was originally acquired by our Field Artillery from the French field artillery during the World War. It is a pocket instrument which will measure both horizontal and vertical angles, determine approximate direction, and supply certain pre-arranged data which are stamped on the metal sides. The instrument weighs about one-fifth of a pound, is 3⅛ inches long, 1-11/16 inches wide, and 5/16 inch thick. A leather carrying case is provided.

The test shows that the sitogoniometer was particularly well adapted for reconnaissance. Its accuracy was less than either the aiming circle or the angle-of-site instrument. Its simplicity and readiness for use, permit greater rapidity in obtaining data, and its small size and light weight more than offset the slight difference in accuracy. The aiming circle for use when accuracy is required and the sitogoniometer for less exacting uses, or for use when concealment demands or when the aiming circle is not available, provide angle measuring instruments for all the purposes likely to be met in combat. Consequently the angle-of-site instrument will be discarded from the equipment of machine gun companies when sitogoniometers are supplied.

There are a considerable number of sitogoniometers now in storage. It has been proposed that these be reconditioned and issued to machine gun companies.

# Antiaircraft Combat

UPON the recommendation of the Chief of Infantry, the War Department has decided that an additional year will be given to the test of Tentative Training Regulations 300-5, Anti-aircraft Combat. Although a deal of valuable information was secured from regimental commanders who reported on the past year's work, it is not believed that the training was sufficiently extensive to warrant drawing definite conclusions as a basis for a revision of the regulations. A memorandum distributed by The Adjutant General extends the period of test for a year and calls for a report from regimental commanders at the end of that period, setting forth their experiences and their recommendations for training in anti-aircraft combat.

The reports covering anti-aircraft practice during 1929 have furnished much interesting information on the subject of anti-aircraft combat. They indicate that the regulations in general are sound and are adequate as a guide for training infantry to combat aircraft. There were submitted a number of constructive criticisms, suggestions, and recommendations which will prove extremely useful in revising the regulations. The experience of an additional year should provide additional valuable information.

In the instructions of The Adjutant General calling for reports from regimental commanders covering the training of 1930, a number of important points which should be considered in making the reports were set forth. These are:

*a. Tactical principles.*

(1) Infantry's best protection against aircraft is found in its own fire power.

(2) Infantry will habitually march upon roads except when concealment is sought. The decreased mobility incident to cross-country marching is not to be accepted as a price to be paid for protection against aircraft.

(3) Infantry units leave the road on the approach of hostile aircraft, not to seek concealment, but to take formations most suitable for firing upon hostile planes.

(4) Formations on the march (road space—security).

(5) Use of airguards—air observers.

(6) Method of signalling approach of hostile aircraft.

*b. Method of training.*

(1) Minimum time necessary to train a rifle company (peace—mobilization).

(2) Correct position for firing at hostile aircraft (standing—kneeling).

(3) Training in right and left leads.

(4) Technique of fire.

(a) Use of combined sights.

(b) Individual estimation of leads in firing.

(c) Method of giving commands for opening fire.

(5) Number of triangulation exercises.

(6) Maximum slant range to target at which fire should be opened.

(7) Indoor anti-aircraft range. (Submit detailed plan with recommendation).

(8) Types of stationary targets recommended, other than targets in Training Regulations 300-5. (Submit sketch).

*c. Courses as described.*

(1) Suitability of the swinging target. Practicability of inverting swinging target.



eral Staff School, namely the employ- pursue a course in a recognized unit

(2) Simplicity in range construction.

(3) Method of scoring.

(4) Practicability of course for training Regular Army; National Guard; National Army.

(5) Types of moving targets to illustrate an attack by airplanes. (Including the use and method of propelling small glider targets).

(6) Ammunition allowances for each course—basic, advanced, towed-target.

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# The Chief of Infantry Will Visit Infantry Regiments

TENTATIVE plans are being made by the Chief of Infantry to complete his program within the next six months of visiting all infantry regiments within the continental limits of the United States. During February, General Fuqua visited the units of the 8th Infantry at Fort Moultrie, South Carolina, and Fort Screven, Georgia, and during April, the units of the 22d Infantry at Fort McPherson and Fort Oglethorpe, Georgia, and Camp McClellan, Alabama.

During May, a visit has been planned to the 10th Infantry, Fort Hayes, Ohio, and Fort Thomas, Kentucky, the 11th Infantry, Fort Benjamin Harrison, Indiana, and the 6th Infantry, Jefferson Barracks, Missouri. In June, the Chief of Infantry will observe the activities of the Infantry School and the 24th and 25th Infantry regiments. This will be timed with the graduation of the Regular Army classes at the Infantry School—June 10, 1930. General Fuqua will deliver the commencement address.

The remainder of the Infantry regiments and battalions will be visited during the summer and early fall. The details of these later trips have not been settled.

During the various trips, the Chief of Infantry will also visit the infantry brigade headquarters and headquarters companies.

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# Extention Course, Command and General Staff School

THE existence and advantages of the Extension Course of the Command and General Staff School seem not to be thoroughly known in the Infantry. Its importance in the education of the Regular Army officer is becoming greater in view of the recent reduction in the number of students that may attend the Command and General Staff School. The Extension Course affords a means for those who will not have the opportunity of attending the school to obtain a general knowledge of the subjects taught.

The Command and General Staff School Extension Course covers, in general, the same ground as the first year course at the Command and Gen-

eral Staff School, namely the employment of the combined arms and the functions of commanders and staff officers in the division. It includes the instruction necessary to insure a general knowledge of the tactics and technique of the separate arms and services, the combined uses of all services and arms in the division, and the duties of commanders and staff officers of divisions. The course is divided into six sub-courses and consists essentially of map problems. The entire course requires approximately 500 hours of work for the student.

The details of eligibility, enrollment, lesson material, and so on, are given in Army Regulations 350-3000. Regular Army officers of the following classes also may obtain the Command and General Staff School Extension Course by purchase. The cost is approximately three dollars.

(1) Regular Army officers preparing, under the agency established by the chief of their branch, to attend the Command and General Staff School.

(2) Regular Army officers not eligible for enrollment in a corps area correspondence school, who are designated by their commanding officers to pursue a course in a recognized unit school.

(3) Regular Army officers on duties that preclude their receiving instruction through other agencies.

In addition, after about October 1st of each year, certain portions of the current course may be purchased without restriction.

The extension course was designed primarily for the training of Reserve officers. However, this course is kept up-to-date constantly with the latest principles and doctrines taught at the Command and General Staff School. It is, therefore, an excellent medium as a refresher course for graduates, a preparatory course for those about to go to Leavenworth, and an instruction course for those who may not have the opportunity to go.

The fact of completion of the course is evidenced by a diploma. The possession of the diploma indicates increased efficiency. An officer who completes the course should submit this document to his rating officer in order that the accomplishment may be recorded on his efficiency report. The Chief of Infantry desires to encourage all Infantry officers to take the course.

## From Arabian to Zulu

*From the Note Book of "General Experience"*

MILITARY nomenclature embraces a wide variety of terms from languages ranging from Arabian to Zulu. For example, the word arsenal comes from the Italian "Arsenale," which was derived from the Arabian "dar-cina'ah" meaning a "house of industry."

The Zulu word "impi" designated an armed body of warriors of semi-regimental character and is frequently used when speaking of South African campaigns.



meet the recruit's poor untutored ef- cleanliness, and comes through with a

# Reviews and Discussion

## Military Procedure

### Prepared Expressly for the Citizen Soldier

MAJ. GEN. E. G. PEYTON, U. S. Army

*For Study and File With Training Memorandum No. 1*[1]

TRAINING NOTES
No. 6

RECRUIT TRAINING[2]

The recruit leaves his environment of free democracy, reports for military instructions, and begins to sense an atmosphere distinctly non-democratic. He is impressed with the lack of individuality or freedom in the matter of dress. The business-like attitude, suggestive of aloofness, of those in authority, who in the Regular Service are strangers to him, differs greatly from the attitude of the mayor, the Sheriff, or other civil official, whom he possibly helped to elect.

The recruit is possessed of considerable curiosity and the psychologist tells us that curiosity must not be stifled in an individual, but satisfied, if possible. Therefore, we read and carefully explain to the recruits the Articles of War, the laws that govern this seemingly undemocratic institution as he sees it. Above all we indicate to him clearly the necessity for these laws, why certain individual prerogatives freely enjoyed in civil life must now be subject to some supervision and limitation. How to read the Articles of War to recruits, and to explain some of the seeming undemocratic requirements of military life has been given in previous Notes on Training.

MILITARY COURTESY

In early teaching the recruit the requirements of military courtesy, we not only satisfy his curiosity to a certain extent, but we satisfy his desire to be a member of the mass or majority in that we teach him to do what the great majority are doing. We make it clear to him that the salute is a means of exchanging courtesies between men who are in the military service. While the law requires the soldier to salute the officer, the officer is bound by the same requirement to return the salute. It must be distinctly understood that the requirements of military courtesy apply with equal force to officers; the junior, initiates the salute, which the senior punctiliously returns.

The recruit must not be permitted to omit this constant recognition of the officers duly appointed to exercise authority over him, but greatest care and patience must be exercised by all officers in this instruction. It is absolutely inconsistent and poisonous to the minds of recruits to emphasize courtesy among military men and then

[1] See INFANTRY JOURNAL for January, 1930, page 77.
[2] Continued from INFANTRY JOURNAL for April, 1930, page 428.

meet the recruit's poor untutored efforts at being courteous with a "growl" and a "call down." We must make it a rule never to reprimand a recruit because of his crude effort to be courteous; stop and, with patience and gentleness, instruct him. Gentleness and courtesy go hand in hand.

UNIFORM

When the recruit puts on the uniform he makes his first and most abrupt outward change from citizen to soldier.

This matter of uniform, its quality, its fit, its neatness, starts or retards the development of one of the most essential attributes in a soldier—pride. Pride in proper strength, will overcome fear. There is no other single influence that holds a soldier on the battle line so well as pride—pride fully developed to include pride in organization, pride in achievement, and pride in all things. Therefore, in the matter of uniform, we should start the soldier with the best opportunity to develop a high sense of personal pride, which is such an essential military asset.

We are apt to be misled by the appearance of the men on the usual Saturday morning inspection. This shows that the men possess and can wear a well tailored and clean uniform, but pride in appearance is lacking in an organization if Saturday morning inspection is the only occasion at which the men appear neatly and properly dressed.

Many men depend upon the company tailor to keep them in readiness to turn out smartly dressed on Saturday. The real test of neatness and pride in uniform is found in the soldier who contends with the daily obstacles to cleanliness, and comes through with a tidy and unspotted uniform.

At times we have been incensed over discrimination against the uniform of our Army on the part of restaurants, theatres and other public places. The remedy for this lies within the service itself. The American people will always respect that which is respectable.

INDIVIDUAL EQUIPMENT

Much the same comments as those on the uniform apply to individual equipment. The soldier has his parade equipment, his drill equipment, and his field equipment. We should inspire pride in beautifying rifle, bayonet, and leather equipment, and in the adjustment and wearing of the authorized equipment. Without proper supervision the soldier will at first make a rack of himself upon which to hang a poorly adjusted equipment. After adjusting belt straps, slings, and the like, uniformity in making the pack should be sought. For instance, experience teaches that the short pack, with all its prescribed components, should not exceed seven inches in diameter, and it should be between thirty and thirty-two inches in length. This is a matter for the company commander to regulate, but he should give it thought and study for the sake of uniformity as well as for the individual comfort of the soldier.

CARE OF FEET AND SHOE FITTING

The soldier stands on his feet during individual instruction, and he uses his feet at drill. Later he marches on his feet in the route march and in battle. He uses his feet in moving from line of departure to assault position. His foot-movements play an important part in his combat with an enemy.

It would seem that a citizen who has



ship exists between, "Extending the

My only chance would be to be suffi-

worn shoes for years needs no assistance in the matter of shoe fitting; but the shoe that he selects to meet the requirements of his civil avocation would not meet military requirements. The officer must give the recruit the advantage of service experience in helping the new man in fitting not only his shoes but also his socks. Lack of care in this matter may easily start foot injuries, callouses, or corns, that will be a source of annoyance throughout the soldier's enlistment.

Fitting shoes on the recruit is only half of the obligation. The care of the feet that wear those shoes is a matter of further concern to the unit commander. The average soldier makes light of trifling injuries, and is loath to report any injuries to his feet. In civil life the citizen can favor an injured foot by a ride on a street car or in an automobile, or by use of a slipper or an older shoe. The soldier, however, has not that free control over the use of his feet, and it develops upon the unit commander to ascertain injuries to feet and to cause prompt treatment thereof. Neglect of the soldiers' feet on the part of an officer shows disregard for the broad tactical principle of economy of force.

*(To be continued)*

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# A Letter Anent Revising Close-Order Drill

I WOULD like to express my hearty concurrence in the plea of "Captain X" for a revised close-order drill bearing a closer relationship to combat formations, appearing in the March issue of the INFANTRY JOURNAL.

As everyone knows our present system of close-order, to approximate perfection, requires training time out of all proportion to the benefits gained.

No one will deny the disciplinary effects of well-conducted close-order drill. But in my opinion these advantages will not in the least be sacrificed by eliminating all obsolete, useless and detailed movements which do not have a direct bearing on combat formations. There will remain enough close-order movements, in addition to the manual of arms, to insure a standard of discipline as high as or higher than now obtained. For will not a few simple movements, executed perfectly and perfected at less cost of time, develop a higer state of discipline than many complicated steps and turnings that can approach perfection only after a long and nagging struggle?

A glance at a senior unit R. O. T. C. program for the basic course shows a manifest disproportion. At the end of his two years in the basic course—where the military training for most students ends—the student has devoted, along with other essential subjects:

115 hours to Drill and Command,
18 hours to Scouting and Patrolling,
12 hours to Combat Methods.

I have been dreading the day when some intelligent sophomore would ask me to explain what possible relation-

ship exists between, "Extending the Mass" or "The platoon being in column of squads to form line to the front," and modern war, for which presumably we are preparing them. My only chance would be to be sufficiently vague and talk learnedly on the enormous amount of counted steps and perfect alignments necessary to develop a high state of discipline.

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# Savings for the Army Officer

MILDRED CORAY

ON the face of it there seems no reason why an Army Officer should save money for the purpose of creating an estate. He retires on three-quarters pay, which appears to eliminate the bug-a-boo that his civilian brothers fears, of penniless old age. In the normal course of events he can provide for himself and his family on approximately four thousand two hundred dollars a year, which represents the income at six per cent on seventy thousand dollars. "How many civilians," he asks, "after thirty years' work have seventy thousand dollars?" And indeed the number certainly is smaller than we realize. But here is the catch. Upon an officer's retirement the government does not hand him seventy thousand dollars. It merely gives him the income from it. We might say that the government places that amount in trust for him with the condition that, upon his death, both principal and interest vanish.

Most young officers are willing and eager to save. However, their pay is small; they are of necessity out of touch with business forms and methods of saving; a modest goal of fifteen or twenty thousand dollars seems a long way off. But is the way so long? Perhaps, if we knew more about it, it would not seem so. There are two types of savings: permanent savings, the money that one saves now and still has at the age of fifty, sixty, or seventy; and temporary savings, the money that one saves over short periods to use for necessities or luxuries. For the permanent type of savings, one may choose from a wide field, which includes companies or associations whose shares may be purchased on a monthly basis.

In selecting such a company there are two factors to consider. First, the town or city—its industries and location. It is growing steadily—neither a boom town nor a dead town? And second, the men at the head of the organization—are they well established in the community or are they the get-rich-quick type?

Having made a careful selection, one can start saving with a small amount, one that can be kept up without an appreciable hardship. A monthly saving of ten dollars over a period of six or seven years, dependent on the company with which one deals, will amount to about one thousand dollars. Just a word concerning this one thousand dollars. With its acquisition a new era begins. You have proven that you can save. You have one thousand dollars. The next problem is to keep it. *Take No Risks With This First Thou-*

*sand.* It is the nest-egg, the foundation upon which the five, ten, or fifteen is to be built. Without the first thousand one can not hope for the second.

The January, 1930, issue of *The Magazine of Wall Street* gives the following figures: saving forty-one dollars and sixty-six cents monthly and investing it five hundred dollars yearly will give, with the aid of six per cent compound interest, forty-one thousand nine hundred and fifty dollars at the end of thirty years. (These figures can be modified to suit individual salaries.) As this plan obviously necessitates more frequent investments, and as each investment requires a great deal of time and study, perhaps it is not so practicable for the Army officer as the previously mentioned type.

This paper has purposely made no mention of insurance. Most officers carry insurance, but a sound view is that it should be carried for protection and not for the purpose of saving or investment.

Five points in summary:

1. Have two savings accounts, no matter how small. This will insure your permanent savings against use in emergencies.
2. Follow a definite plan.
3. Start with a small monthly saving that will not pinch and thereby discourage.
4. Know the securities that you buy.
5. Plan, think, and work toward the goal you have set for yourself.

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# Indian Fighting and Tactics

THE following letter came to the JOURNAL recently:

Have read carefully the article "From Colonial Times" in the INFANTRY JOURNAL for January, 1930. I wonder what method a man who would be a "chief" might use to make the knowledge to be gained by studying the stories of Braddock and Bouquet "a part of himself," as is recommended by the distinguished French marshal. The warning against "a group of formulas or a set of principles" is particularly noted in this connection.

It happened that shortly before I received the January INFANTRY JOURNAL my interest in Indian fights as examples of leadership had been aroused by the story of Chief Quanah Parker and his attack at the Adobe Walls as given so well by the author of "The Shaggy Legion" on pages 28 and 30 of the *Saturday Evening Post* of January 4, 1930. When I read that Quanah became the great war chief of the entire Comanche nation while yet a mere boy and that, "He became the most sagacious and dreaded Indian leader in the whole Southwest," I determined to examine critically, in the professional sense, the manner in which he planned and carried out the Adobe Walls fight. I wanted to find out whether his fame was well founded when viewed in the light of his leadership there. To do this I applied the test of the principles of war—much to my own satisfaction and the fame of

Quanah Parker insofar as I was concerned.

When the INFANTRY JOURNAL containing the article on the Braddock and Bouquet fights came to hand I decided I could again apply the priciples of war test, and did so with profit and interest.

Since reading of the Adobe Walls and the two Colonial Indian fights it happened that I went to see the photoplay "Four Feathers," in which Soudanese "Fuzzies" attack a British column under circumstances similar—except in one detail—to those of the attack on Braddock. An examination of the action of this play reveals a knowledge and skill in the director worthy of special note. The repulse of the Fuzzies is due—in my opinion—to the correct application of the principle of the objective, as I understand that much misunderstood matter.

Now, while the Braddock fight was in violation of every teaching, are we to deduce that the Bouquet leadership was a model? I have a suspicion that during the night Bouquet received some good advice from a hard-headed frontiersman and determined to try a little principle of movement. At any rate it took him a long time to work out the maneuver that drove off the Indians. Of course it is possible that the complicated nature of the maneuver may have demanded time for its preparation.

May I ask your opinion on the best method to study the history or the story of a fight, be it a battle or an obscure Indian fight?

## War Cries of Nations

*From the Note Book of "General Experience"*

| | |
|---|---|
| England (Medieval) | St. George! |
| France (Medieval) | Montjoye St. Denis! |
| (Empire) | Vive l' Empereur! |
| Germany (12th century) | Guelf (or Ghibelline)! |
| Spain | St. Jago! (corrupted later to Santiago) |
| Welsh | Alleluia! |
| Crusaders (first) | Deus Vult! |
| (later) | Dieu le veut! |
| American (1898) | Remember the Maine! |
| (1918) | When do we eat! |

# The Infantry

REGULAR — NATIONAL GUARD — RESERVES


## The 22nd Infantry's Anti-Aircraft Firing

*The anti-aircraft work of the 22d Infantry, Col. L. W. Caffey commanding, has the special aspect of having been conducted under conditions of very limited time and space. The report should be of special interest to organizations that are similarly handicapped.*— EDITOR.

### I

THE LETTER OF TRANSMITTAL

IN compliance with your letter, dated August 5, 1929, I am forwarding herewith copy of my report and description of substitute moving targets, which you are at liberty to publish in the INFANTRY JOURNAL if you so desire.

These inclosures cover all that we are able to test out at this station, the terrain and time being limited. The corps area maneuvers disrupted my schedule, in which sufficient time had been allowed for more tests and experiments. My rifle practice had to be postponed from last fall to next spring. And the only time available for anti-aircraft combat firing was three weeks in December, in conjunction with chemical warfare training.

I am of the opinion that Captain Teate's suggestion on the use of galleries similar to the commercial ones, as he describes in one of the attached articles, should be tested out, as it may be the means of providing a simple course that would take the place of the tentative .22 caliber and towed-target courses. I believe that it would afford sufficient training for men to be able to hit actual targets in time of war with ease, providing the correct lead was given. The training regulations should contain a course of instruction for officers and noncommissioned officers in determining target-length leads for all kinds of targets to be encountered in combat.

### II

THE REGIMENTAL COMMANDER'S REPORT

In compliance with memorandum, War Department, dated January 26, 1929, the following report is submitted.

*a Tactical Principles:*

Soundness: Apparently sound.

Additions recommended: See comments under *c*.

Other comments and recommendations:—From the practical experience in the recent Fourth Corps Area maneuvers at Camp Jackson, S. C., the undersigned is of the opinion that the Air Corps could be of considerable more service to the ground troops in these maneuvers, by the use of normal war methods. The practice of low flying, habitually just clearing men's

heads or trees, would certainly not be accomplished under war conditions. This method of operation gives the ground troops a false impression of what we can expect in time of combat, and distorts the average soldier's conception of what we are trying to accomplish under TR 300-5.

*b Methods of Training:*

Practicability for service use: Apparently practicable except as to time, see comments under *c*, below.

Covered under *c*, below.

Additions recommended:

Substitutes recommended:

Other comments, etc.:

*c Courses as described:*

Practicability for service use: The towed-target course and parts of the .22 caliber course are impracticable where terrain is not available.

Additions recommended: Indoor gallery practice to substitute for outdoor .22 caliber course where terrain is not available.

Substitutes recommended: See attached description of .22 caliber indoor swinging target. Where large indoor ranges are available the entire .22 caliber course may be fired on same by reduction of targets and distances as described in attached description of .22 caliber swinging target.

Other comments: The time required for this training will no doubt enter as a large factor to be considered for practicable training. With only five .22 caliber rifles per company, the .22 caliber course is necessarily slow. This regiment fired all riflemen at this station (two hundred and ten men) through a modified course. No terrain being available for the swinging and vertical moving targets, the modified course consisted of the preliminary instruction and firing at the parallel stationary and moving targets only. It required three weeks to complete this modified course. The firing was carried on in conjunction with other training, groups alternating. The time required for moving targets can be reduced by the erection of more such targets, but the material and space will enter as large items to consider. This firing may be worked out by the grouping of all .22 caliber rifles, one company or group to compete where sufficient targets are available.

The towed-target course, where practicable, will no doubt be found impracticable for training of any number of men, on account of the time factor.

Attached hereto are descriptions and pictures of substitute targets used at this post. The outdoor parallel moving target is believed not only a substitute for but an improvement over the same target described in TR 300-5. The indoor swinging target is a substitute where terrain is not available for outdoor work and may be carried out further to include all the .22 caliber moving targets described in TR 300-5.

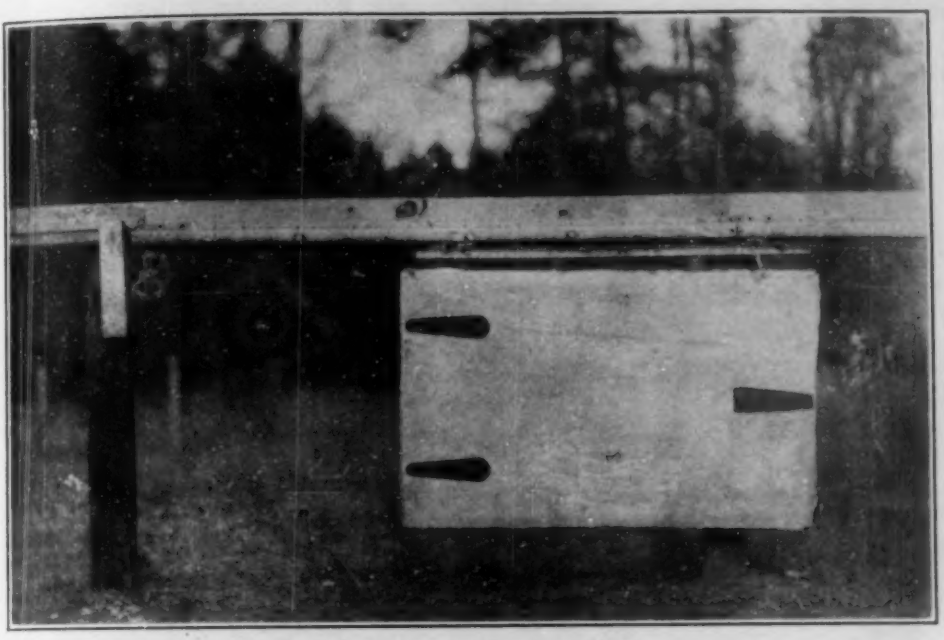
The principles and methods of concealment as outlined in TR 300-5 are good, as demonstrated in the combined maneuvers at Camp Jackson, S. C. The Air Corps admitted, even with low flying, that it was impossible to pick up or locate foot troops.

III

DESCRIPTION OF 22D INFANTRY INDOOR SWINGING TARGET

*Capt. H. F. Teate, 22d Infantry, S-3*

No terrain allowing sufficient waste space was available at this post. The



**Target in Position on Track.**

following is a description of a substitute indoor target:

The indoor range available for this experiment was only fifteen feet wide and fifty feet long.

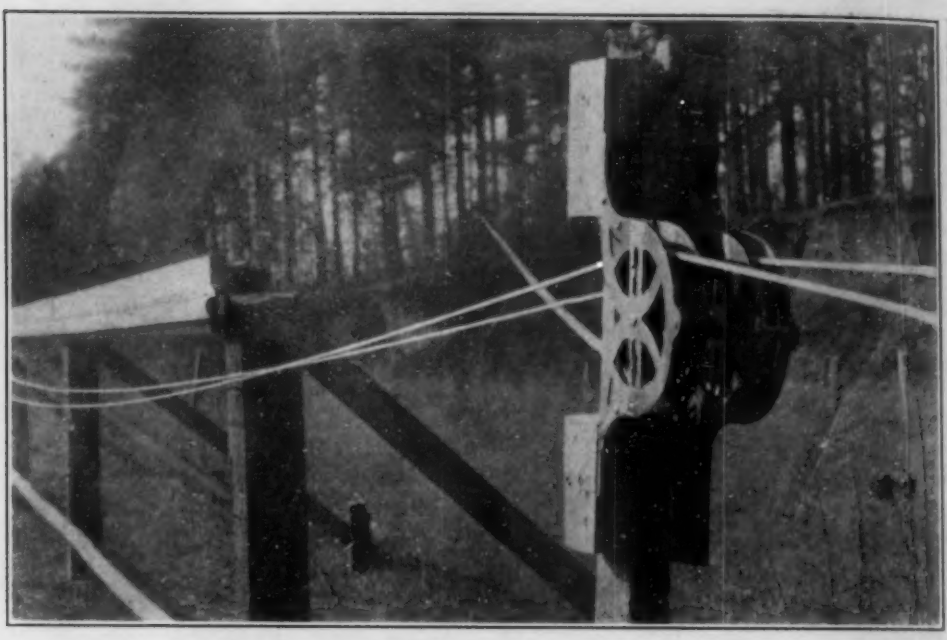
Three sections of the landscape target rack, described in Plate 23, TR 145-5 were erected in the target end of the gallery. The swinging target rigging was fastened to the top center of this rack or frame.

The swinging target was constructed as follows:

A six-inch window pulley was removed from its housing. The holes through the housing were reamed out to one thirty-second of an inch larger than hole through pulley. The pulley was then replaced in housing by driving a pin or axle so that it would be tight in the pulley and loose in the housing. The axle was six inches long and threaded for two inches on the end protruding from the pulley housing. The base was made of bar iron to support the protruding end of axle. The carrier arm was a piece of three eighths by three-fourths inch bar iron ninety inches long. A hole was bored in this arm so that the same would slip over the threaded end of the axle and so that the long end of the arm would reach the bottom of the landscape target frame. The arm was fastened to the axle with lock nuts.

The target carrier was a sheet-metal card-board holder, fourteen inches by twenty-eight inches, with an opening twelve inches by twenty-four inches, or shooting through space. The sheet metal was cut in U shape and a piece of bar iron was riveted across the top of the U. The carrier was bolted to the arm by bolts through the bar iron across top and the bottom of the sheet metal.

Card-boards cut to fit the carrier, with silhouettes and recording targets,



**Showing Arrangement of Pulley and Track.**

were used, separate pieces of cardboard for each. This allowed the recording targets to be changed without removing silhouettes.

The dimensions of the silhouettes, recording targets, and firing distance were just half of those for the swinging target described in TR 300-5. The silhouettes were five and one-fourth inches long, and the firing distance was five hundred inches. The speed of the target was cut correspondingly to five and one-half feet per second.

A small rope one hundred ten feet long had the center part twice wound around the window pulley. The ends of the rope were then passed through swivel pulleys at the top and the side of the landscape target frame, then along the side of the gallery to the rear of the firing line.

The target was swung back and forth by first pulling one end of rope and then the other. With a little practice the desired speed can be maintained with ease.

The method of firing was similar to that described in TR 300-5. Two men firing at the time, fired five shots each, when the recording target cardboard was removed and replaced. No time limit could be put on the shots as the arc of the target was so small that the firer could not get a shot off on every swing of the target.

The ends of silhouettes were rounded instead of square, the center line in lead of target being much easier to follow than with square ended silhouettes.

The recording targets were slightly different from those described in TR 300-5. The actual size of silhouettes was used, with a half inch margin all around added. The recording targets were drawn on card boards so that the center of the five scoring space would

**Landscape Target with Plane on Frame.**

be in rear of the proper striking point of the bullet for the target length lead being fired.

Only one and two target length leads were tested on this target. It is not believed practical for more leads than this, on account of short aiming time.

The pendulum weight was made so as to be adjustable on the carrier arm. The idea was to do away with rope and get desired speed from pendulum swing by adjusting the pendulum weight. This was not successful.

An interesting sporting feature was tested out. The card-boards were removed from the carrier and a small paper silhouette of an airplane was clipped to a card-board holder, which was inserted in the lower corner of the carrier. This operated in front of the landscape targets. The paper plane was cut and painted to represent a plane in the act of diving and banking up towards the firer. By operating the target in front of the landscape targets it gave the appearance of a plane three hundred and fifty yards away, diving and banking over actual terrain.

The scoring spaces were marked on the rear side of the planes as follows: cock-pit area, 10; gas tank area, 8; motor area, 6; rudder area, 4; wings, 2.

Five expert riflemen were used to test this sporting target with following results:

| | |
|---|---|
| Group total score before practice | 62 |
| Group total score after practice | 118 |
| Group possible score | 250 |

The landscape targets being only twenty-four inches high, the arc of the target had to be decreased to keep the

plane in front of the landscape. This made the firing harder and took more time for each shot than on the silhouettes. In some instances the firer had to follow or lead the target back and forth with the rifle four or five times before getting his shot off.

From this experiment the writer is of the opinion that a very satisfactory gallery for either indoor or outdoor use could be built at small cost by adopting the moving bird idea of the commercial galleries. Small metal silhouettes and planes could be operated on belts. The one thousand inch or shorter firing distance could be used, and the targets sized in proportion. The operating machinery could be built so as to provide different speeds for the different target-length leads to be fired, so that when the proper lead was taken the target would be hit and knocked over. This form of target could be used for parallel, oblique, and vertical moving targets. It could also be used as an arc target (replacing the swinging target) by running the target belt over an arc track instead of a level one. This gallery could be put up outdoors, with metal plates or preferably dirt butts as bullet stops. This kind of target would more than save its cost in time saved to complete the course. The sporting feature of target would greatly add to its advantages, as it could be used both during training hours and at any other time, even at night if properly lighted. It would prove more attractive than the present indoor bulls-eye gallery.

### DESCRIPTION OF 22D INFANTRY PARALLEL MOVING TARGET

Used in Anti-aircraft .22 caliber Combat Firing

*Capt. H. F. Teate, 22d Infantry, S-3*

No target carrier or track for the one thousand inch machine gun targets were available at this post. The following is a description of a substitute used for the same, which we believe is not only a substitute but an improvement. It can be erected easily and from salvaged material. It is easy to operate and a time saver over the machine gun carrier as described in TR 300-5.

LIST OF MATERIAL

*Track:*

| | | |
|---|---|---|
| *Lumber:* | | |
| 5 | posts 6" x 6" x 6½' | Track. |
| 50 | linear ft. 2" x 8" dressed | |
| 50 | linear ft. 1" x 2" (See plates 1 and 4) | |
| 2 | posts 4" x 4" x 6' | Crank Support. |
| 2 | braces 1" x 4" x 3' | |
| 2 | props 2" x 4" x 5' | |
| 1 | 2" x 4" x 6' pulley support (See plate 3) | |
| *Metal:* | | |
| 1 | 6" window pulley | Track and Target Carrier. |
| 7 | sections of litter track from old motor ambulance bodies. | |
| 1 | small pulley to hold up cable. | |
| 2 | rollers for litters with strap and spring removed. (See plate No. 1) | |

| | | |
|---|---|---|
| 1 | motorcycle sidecar wheel and axle | Crank Rigging. |
| 2 | GMC draw bar guides | |
| 1 | Crank made of ¾" round iron (See plate 2a) | |
| 2 | 6" window pulleys | Cable Guides. |
| 150' | ¼" flexible cable | Propelling Cable. |

The posts were sunk in the ground two feet, leaving four and one-half feet about the ground. The two by eights were nailed to the firing side at the tops of the posts. The sheet metal ambulance litter tracks were fastened to the two by eight railing, with the roller bearing side down. The one by two inch strips were nailed to the firing side of the posts, one foot from the ground. These strips acted as target guides, preventing the target from swinging in and catching against the posts. (See plates 1 and 4.)

*Target Carrier:*

The two litter rollers were fastened to a wooden strip one inch by one inch by four feet by bolts, the rollers being three feet apart. The wooden strips had screw hooks in the lower side six inches from each end. Screw eyes were in the top edges of the targets, one foot from each end, allowing the targets to be hung and removed from the carrier very readily. A small three-eighths inch turn buckle was fastened between the roller eyes to protect against cable strain pulling the rollers from the wooden strip. A small pulley was fastened to the center of the wooden strip by wire. This pulley kept the free cable lifted behind the target to prevent its being cut by bullets. (See plate No. 1.)

*Crank or Propelling Rigging:*

This was made from an old motorcycle side-car wheel and axle. The ball bearings were removed and the wheel was brazed to the axle. Two GMC draw bar guides were bored out to make bearings for the axle. These bearings were fastened to four by four and one-thirds with holes bored in them so as to take the axle. The four by four inches were spaced so as to allow one bearing against the wheel and the other near the crank. The four by four inches were then fastened together with cross braces. The wooden frame was six feet long, allowing three feet in the ground and the same distance above ground. When placed in the ground the opposite corners must be propped against the cable strain. The crank was made of three-fourths inch round iron by doubling back and swelling one end until large enough to be bored out to slip over the end of the axle. It was then pinned to the axle. (See plates 2 and 2a).

*Pulleys:*

One pulley was fastened to the end of the track away from the crank as the main or cable pulley. (See plate No. 1).

Two pulleys were fastened on opposite sides of a two by four inch post which was sunk in the ground half way between crank and track. These pulleys acted as cable guides and also kept the cable raised. (See plate No. 3).

*Cable:*

Wire was first tried and found unsatisfactory. A piece of one-fourth inch flexible cable was found in salvage. The cable was one hundred fifty feet long, allowing the crank to be at safe distance from targets.

The ends of the cable were run over support pulleys, one end then being fastened to the near end of the carrier by passing it through the rollery eye and clamping. The other end of the cable was carried through the small support pulley on the carrier, then up through the main pulley at end of the track, and then back to the carrier and fastened to the other roller eye by clamps.

The cable was then stretched out to determine the position of the crank rigging. The crank rigging having been placed, the cable was run over the wheel. Care must be taken in placing the crank rigging so that the cable can be run over the wheel at a good tension and yet not too tight.

*Operation:*

It requires one man only to operate the device, and with a little practice any speed desired can be maintained.

The firing line commander acts as signaller to the operator, raising his hand to start the target and lowering the hand to stop it. With one hundred fifty feet of cable the crank rigging is about twenty-five feet from the track. The firing line commander stands about half way between the firing line and the crank rigging.

The method of firing described in TR 300-5 was used except that three men instead of two fired at one time. This increased the capacity of the target fifty per cent. Plate No. 1 shows the placing of silhouettes in order to fire three men at a time. Two men fire while the target is moving in one direction, and one man on the return journey. Plate No. 1 also shows the rounded-end silhouettes in comparison with the square end. Much better scores were obtained with the round ends. This is no doubt due to our training on the range to fire at bottom of the black, which draws the alignment below the center when leading. With the rounded ends much better elevation results were obtained, the line of center being easier to follow.

The recording sheets were changed from those described in TR 300-5. The cockpit area of a plane being the mast vulnerable part, it was desired to place the highest hits in this area. Instead of lengthening the five scoring space two inches, the recording sheet was of the same size as the silhouettes except for the one inch larger margin all round. The forward two inches of silhouette space was termed the motor area and scored 3; the one-inch margin around this area was scored 2. The area extending back from motor area for three and one-half inches was termed the cockpit area and scored 5; the one-inch margin above and below this area was scored 3. The remainder of the silhouette area was termed the gas tank area and scored 4; the one-inch margin around this area was scored 2.

In rounding the ends of silhouettes the length was not increased. The recording sheets were cut to correspond and better scores were obtained even with the reduction of scoring space.

In placing the recording sheets without the two-inch addition to the 5 space it is necessary to move the sheet forward of the target length lead being fired. In other words, place the center of the 5 scoring space over the strik-

ing point for the target length lead being fired. Firing with one target length lead, the striking point would be the front end of the silhouette, the center of the 5 scoring space would be placed over this spot.

It was found that constant speed must be maintained to get good scores. With this target it is believed that the speed is more regular than with the machine gun carrier. Other advantages are ease of operation and time saved; as soon as the target reaches the end of the track it is started in the opposite direction. Another time saving element was the hook and eye arrangement for swinging targets to carrier; as soon as the score was completed the target was removed, another hung, and the old target was observed, scored, and prepared while next group was firing.

Only the three by five foot one thousand inch targets were used. The carrier can be made larger in order to take two of these targets joined together. By placing silhouettes half off target, four target length leads can be fired with the single target frame.

The ambulance litter tracks are seven feet two inches in length. Only seven pieces were available, which allowed a track approximately fifty feet long, and with the target occupying five feet it allowed target travel of about forty-five feet, which was found more than ample.

The time element being a large factor in this training, it is believed that TR 300-5 should be amended to contain up to three target-length leads only. This is sufficient for planes traveling much faster than the military type of the present time. Later, if the speed of planes increases, target-lengths can be increased without increasing the length of the course, by eliminating a corresponding number of smaller leads.

-I-

# The 50-Foot Small Bore Range

## The 30th Infantry experiments with targets

1ST LIEUT. HAROLD G. SYDENHAM, 30th Infantry

THE U. S. Rifle, caliber .22, is an admirable piece of mechanism and an undoubted asset in improving rifle marksmanship. To fire excellent groups or first class scores requires thorough training in all of the elements of marksmanship. Regardless, we hear people with experience making derogatory remarks to the effect that a man's shooting ability cannot be judged by his work with the .22 caliber rifle. Why?

Whether or not a man will develop a flinch on the range cannot be determined definitely in small bore (gallery) work. Powerful explosions and recoil will cause men to react in some way or another unless the training he receives gradually prepares him for the shock.

Proper training in the gallery will develop the following: (a) Proper positions, (b) Proper method of aim, (c) Proper trigger squeeze, (d) Good

cadence of fire, and (e) Coordinated muscular action. If the soldier accomplishes these things in the gallery his commander need only worry about preventing "Flinch" on the range.

If an officer cannot judge his men's shooting ability by the results obtained by firing the gallery rifle there must be something wrong. If not with the rifle then with the targets used.

The majority of small bore targets delude the firer as to his ability. Scores made on them are no proper medium for comparison with the Record Course "A." For example: If the 1.16 inch bulls-eye is used at 50 feet the results would be equivalent to firing on a 20 inch bulls-eye at a range of 287 yards. This produces an illusion as to the soldier's ability to see and hold on the range unless his officers have a definite idea as to the relative sizes of the targets at different ranges as projected at 50 feet.

The most essential things which we desire to compare in small bore firing and Record Course "A" are:

1. The soldiers ability to group his shots in limited space,
2. Flinching tendency, (Indicated by wild shots in all positions),
3. Eyesight as applied to firing,
4. Coordination of eye and muscle,
5. Intelligence, (Judgment, ability to understand).

To obtain a medium for these comparisons the author has devised a series of targets, assembled on a single sheet of paper, representing the Record Course "A" in miniature for use at 50 feet. All scoring spaces are reduced .11 of an inch less than proportionate visual size to compensate for the .22 caliber bullet hole in its relation to the small target. The slow fire bulls-eyes and the 500 yard rapid fire figure are full visual size with the (5) line .11 of an inch inside. The 200 and 300 yard figures being large are .11 of an inch smaller than visual size.

Under the supervision of Colonel Fred R. Brown, the 30th Infantry has been experimenting with this miniature Course "A" with promising results to date. Eight of our best shots fired this course with the resulting average of 323.9 points per man. These men averaged 324 points the last time they fired the Record Course. A group of forty-two men firing the course averaged two points more on the miniature course than their average on the Record Course "A" the last time fired. One of the firers, who had accomplished excellent scores at 50 feet on the 1.16 inch bulls-eye and had subsequently fired all over the target on the range, was found to be shooting wild at preliminary on the miniature course. It was decided that the cause was poor eyesight. He was directed to change his point of aim with a decided improvement in his scores and groups. A recruit fired the miniature course after about twenty-four hours instruction. His score was 288. A group of recruits fired the miniature course after eight hours instruction, they averaged 226, high score 255, low 211. An expert rifleman firing the course demonstrated the well known "Bull" call "Deuce" score on the 600 yard miniature target. He flinched a miss, a 2, and a 3, with a resulting total score of 299.

Comments heard among the men during firing were very much like those heard on the outdoor range. Interest ran high. The slightest jerk, shoulder hunch, or breath threw the bullets out of groups into the outer

scoring rings. On the rapid fire targets the firer's ability to hold apparently was well demonstrated.

It is evident that the poorer the shot the more he shoots true to range form on the miniature target. His errors show up in score and group. The Expert Rifleman who shoots well on the range may be expected to improve his score by five to fifteen points on the miniature course. This can be explained by calling attention to the fact that there is no wind or change of light in the gallery; that the gallery rifle sight is more perfect mechanically than the service sights.

# Regular Army

A UNIQUE plan for the training of "poor shots" with the rifle has been inaugurated in the Third Brigade. Each rifle and service company was required to select ten of its poorest riflemen to fire weekly a series of small bore "shoots" during the months of January and February, 1930. Much emphasis was placed in assigning a suitable coach to each firer to insure the maximum benefit from the instruction. The complete course was fired by organizations of the 9th Infantry, Col. G. McD. Weeks, commanding, and compilation of the results showed an average increase of sixty-two points per man in the eight weeks of firing. Owing to the assignment of the 23d Infantry to duties at Camp Bullis, that regiment was unable to complete the course.



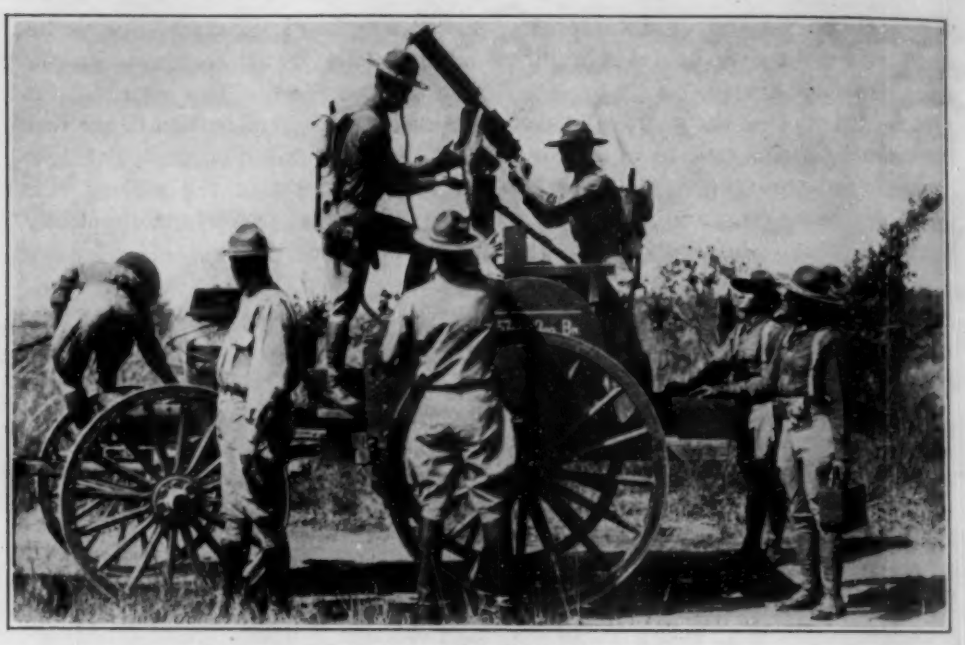
The small-bore team of the 3d Infantry, Col. W. C. Sweeney commanding, recently topped off its series of telegraphic matches for 1930 by firing an extremely long distance radio match. This match, which was between the 3d Infantry at Fort Snelling and the 15th Infantry at Tientsin, was almost a "shot heard 'round the world." The Fort Snelling shooters nosed out the "Can Do" men by a score of 2589 to 2456 for seven-men teams. It would look as if corn beef and cabbage is a better diet for shooting than rice cakes and poppies.



The small bore rifle team of Company E, 4th Infantry, shot the high score of 3,346 out of a possible 3,500 in the N. R. A. Company Matches this year. Of the members of this straight-shooting team, Corporals Carlsen and Moore shot on the 1929 Infantry Rifle Team and are distinguished marksmen. First Lieut. Kameil Maertens has shot on both the Infantry Rifle and Pistol Teams, and Sergeant Backell was on the Infantry squad for 1929.



The 15th Infantry, Col. J. D. Taylor commanding, recently held a course in chemical warfare defensive measures. All officers below field grade except those who held certificates of proficiency from troop schools or from the Chemical Warfare School, and two non-commissioned officers from each company, attended. The course covered the following subjects: history of



**A Versatile Water Cart**

chemical warfare; training principles; gas mask drill and inspection; fitting of the gas mask; mask disinfection and care; use of the gas chamber; organization and discipline; gas-proof chambers; characteristics of agents; tactical use of smoke.

①

Capt. W. H. Towle, 57th Infantry (P. S.) and Capt. N. L. Soderholm, 2d Infantry, have developed an anti-aircraft water cart as a solution for problems that arose during the maneuver of the Philippine Division. The converted water cart, which is illustrated herewith, supplies troops with a full tank of water that is always available, also provides for instantaneous anti-aircraft machine gun fire for units that use pack-transported machine guns.

The high angle of fire, about 85 degrees, and the all-around traverse when firing at high angles, are secured by two extensions clamped by two bolts to the cradle of the Model M 1917 tripod. Wing nuts permit these extensions to be quickly detached so that the gun may be made available for ground use. With the extensions left on, the gun can be used for anti-aircraft fire from the ground. The use of steel or reinforced wood for the extensions is necessary in order to provide the necessary strength.

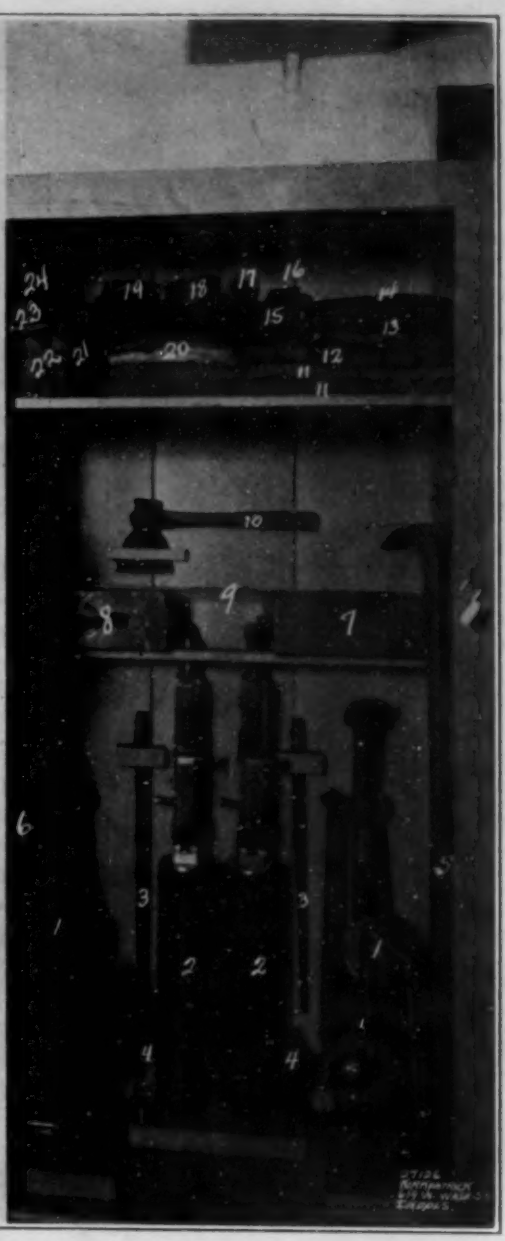
①

The commanding officer of the 27th Infantry, Col. W. E. Hunt, recently received from the Olympic Club of San Francisco a handsome loving cup awarded by Capt. Herbert D. Walter, a member of the Olympic Club and an officer of the Reserve Corps, to the man who won the full field equipment (less arms) swim sponsored by that Club in December, 1929. The cup went to the winner, Pvt. William Aberterombie of Company I, at a regimental parade.

Machine Gun
Locker
Company "M"
11th Infantry

1 TRIPODS
2 GUNS
3 SPARE BARRELS
4 OILER
5 PICK
6 SHOVEL
7 WATER CHESTS
8 AMM. CHESTS
9 CLEANING RODS
10 BROAD HATCHET
11 CART PAULINS
12 CARRYING SLINGS
13 CANVASS BUCKETS
14 STEAM COND. DEVICE
15 GUN COVERS
16 SPARE BARREL COVER
17 FLASH HIDER
18 MULE SHOES
19 GROOMING KITS
20 ASBESTOS MITTENS
21 GUN RECORD BOOKS & FIRE CONTROL TABLES
22 TOOL ROLL
23 BAG, NUTS & BOLTS
24 ANTI-AIRCRAFT SIGHT

Dimensions
5'10" x 2'9" x 1'7"
Shelf 4'7" above floor



Nearly every machine gun company commander has the problem of how to care for his gun equipment and fire control instruments. Tables of equipment provide no lockers or chests for them. Company M, 11th Infantry, Capt. C. H. Wilson commanding, solved the problem by using improvised clothing lockers that were about to be broken up. They were strengthened, repaired, and equipped with brackets. Each locker holds the equipment for one squad, and the corporal is held responsible. The accompanying photograph shows how the equipment was arranged.

**The Neff Marksmanship Trophy**

Col. J. H. Neff, commanding the 20th Infantry, has donated a marksmanship trophy for which companies of the 20th Infantry will compete annually. The first of these annual competitions was completed on February 22d. All rifle companies worked hard, and the final company averages showed a difference of less than eight points between the winner, Company K, and the runner-up, Company F.

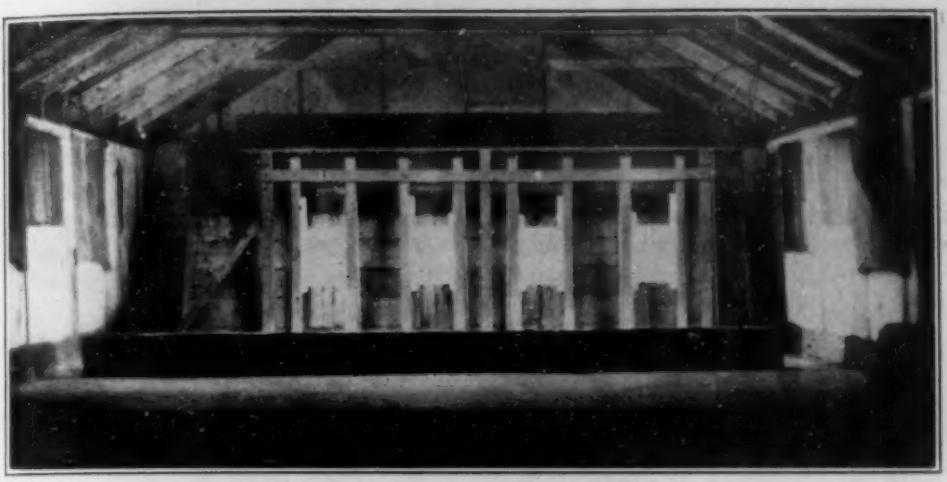
At an assembly of the companies on February 27th Colonel Neff presented the trophy, a beautiful silver statuette of the Goddess of Victory poised on a pedestal that bears the coat of arms of the 20th Infantry. This trophy remains in the temporary possession of the winner of each annual competition until some company has won it three times, which brings permanent possession. Also interesting is the fact that there were individual prizes and a cash award of fifty dollars to the company fund of the winning company.

ⓘ

The small-bore rifle team of the 16th Infantry, Col. A. S. Williams commanding, has had a successful season. It won eleven of the twelve matches fired and finished second in the one that it did not win. Most of the matches were dual matches with other infantry regiments. Matches that did not fall in this class were dual matches against the 13th Coast Artillery of the New York National Guard, the New York Stock Exchange, and the College of the City of New York.

ⓘ

Col. A. M. Shipp has been hard at work for a couple of years to put the 25th Infantry "on the map" in the matter of small-bore shooting. At one end of an old mess building he had a hollow wall of planks built and filled with dirt to make a back stop. Iron parts salvaged from old army ranges and fastened at a slant to the backstock deflected the bullets to the cement floor, so as to obviate even the smallest chance of danger. With specially in-



**25th Infantry Small Bore Range**

stalled lights and windows covered with salvaged canvass, the shooters started to work on this improvised indoor range which had been built without cost to the government.

The 1928-29 season was not especially successful from the point of view of matches won, but was eminently so from the point of view of interest. For the 1929-30 season, largely through the enthusiasm and initiative of Capt. A. C. Macnab, 25th Infantry, the indoor range was improved and remodeled so that it is now one of the best of its kind in the Southwest. A pit was dug and sliding target frames were installed. The lighting was improved and the floor at the firing point was cut away and the space was filled with dirt. New front sights for the gallery rifles were secured. Under the guidance of Captain Macnab the shooting this year was much more successful than last year. Now, as one team member says, "Look out for the 25th next year. We are looking at the bull's eye, and we shoot where we look."

At 6:30 A. M. on April 4th, the 30th Infantry, commanded by Col. F. R. Brown, left the Presidio and moved across San Francisco Bay to Fort Baker. It had a tactical mission, though the enemy was not a real one. It was working out a problem and had to cover the movement of a division to Fort Barry. This involved debouching from a pass in the face of an inferior intrenched enemy, and attacking his position. The regiment used ball ammunition, and despite the extremely rugged terrain and the many restrictions imposed by safety precautions, the attack was well executed and a large percentage of the shots found their way into the targets that outlined the enemy's position.

①

At the invitation of the Government of the Republic of Cuba, extended to the Hon. Theodore Roosevelt, Governor of Porto Rico, Colonel Helms, commanding the 65th Infantry, selected a five-man rifle team to represent the people of Porto Rico at the athletic games of the central American Repub-

lics held at Havana from March 15 to April 16, 1930. In selecting the 65th Infantrymen for the team, Colonel Helms chose not only exceptionally good shots, but also men of superior soldierly appearance and conduct. As a final fillip the two first sergeants, two corporals, and one private who made up the team went from San Juan to Havana by airplane.

The bayonet men of the 35th Infantry, Col. I. C. Welborn commanding, have just dashed and thrust their way through another qualification course. A total of 546 men completed the course. Of this number 93.96 per cent qualified as bayonet experts. The average score per man was 91.48. In company scores Company K led with 98.36 per cent qualified.

-I-

# National Guard

### Training in Minor Tactics

NATIONAL Guard field training programs and schedules all provide for the training of small units in minor tactics. They cite the training regulations—combat principles of the rifle squad, the section, and the platoon as the basis for this training.

This is all good. It is exactly in line with the Militia Bureau Notes on Training which were distributed to the service last month. We cannot have too much of it. Three well trained squads make a well trained section; two such sections constitute a well trained platoon; and three good platoons make the fighting element of a company that will give a good account of itself under any circumstances.

It all goes back to the squad, so that unless the basic training of the squad is good, that of the higher units is handicapped.

Preparation for training in minor tactics is no different from that for other kinds of military training. A company commander would not think of taking his men to the target range to fire their record practice without having gone through the course of preliminary training prescribed in the regulations. He would consider it just so much waste of ammunition and so it would be. Yet he will take his company out on a tactical exercise with little or no preliminary training of his non-commissioned officers and men in the particular subject he has chosen for the day's work. He gives little thought to the men's time and effort which he is wasting by such procedure.

There are yet a number of armory drill training periods before the field training season comes on. The wise company commander will go over the training regulations and prepare his men for this important work. He cannot go at it haphazard and expect to accomplish anything. Systematic preparation will pay big dividends in efficiency and in holding the interest of the men. It will show up to advantage at the field inspection and tests.

When a man starts to build a house, the first thing he tackles is the foundation. If that is good and solid he has little else to fear. So it is with tactics; when a man starts to study this branch of military art, he must first of all build himself a foundation. If this is solid and substantial, the rest is easy.

This foundation of military tactics is what we call the "Estimate of the Situation." There is nothing mysterious about it, nothing difficult. It is just the plain common-sense way of going about any task. It is merely the process of sizing up the military conditions of the problem to be solved, in a logical and systematic manner.

A tactical decision without an estimate of the situation is a blind guess. It may be right and it may be wrong. The chances are in favor of the latter. The commander of troops who fails to consider the conditions of the problem does not take advantage of the aids that are at his disposal. If he blunders into action without an estimate he is doomed to disaster, eventually. The tactical operation may be one in which there is not much to consider—where there is little choice of methods—but one should nevertheless go through the process, even if only a few minutes time are available.

The company commander must convince his men of the need for estimates of the situation. There are those who think that it is a "lot of bunk." They have the idea that it is intended for colonels and generals, and not for officers and non-commissioned officers of the lower grades. The fact is that it applies to every leader of troops, from the commander of a patrol of three men to the commander of a group of armies.

The problem for the company commander is the selection of the method to be used. One will do it by reading the text of the training regulations, another will have a recitation, still another will go about it with a demonstration on the armory drill floor. Finally there is the conference method.

In the conference method the company commander assembles his non-commissioned officers. He is the Director. He explains the importance of the estimate of the situation and then takes up the details of the subject.

*The Director:* "The estimate of the situation applies to every man who commands a body of men, no matter how large or how small the command may be. When your squad is operating as a part of the section, under the control of the section leader, your estimate may be limited to only a few points; but there are many times when your squad will be off by itself and you are on your own. It is under such circumstances that the full import of the estimate applies.

"Now, let's examine the matter in detail. In every tactical situation the commander responsible for the operation has to determine upon some fundamental points. Let us say you are the commander of a squad, out on any kind of an independent mission. You run into a tactical situation. What is the first thing you've got to think about, Corporal A?"

*Corporal A:* "I've got to think about my job, sir."

*The Director:* "Exactly so. A thought flashes through your brain—'What is my job now? What am I to do here?' Ordinarily this is a simple matter. You are out operating under the orders of your section or platoon commander. He has given you a job to do and is depending on you to do it. You stick to that job as long as it is possible to do so.

"In the 'fog of war' no man can provide for everything in advance. In some instances you will encounter conditions that could not have been foreseen. These may change the situation. It is then that you must decide for yourself what your job is. In deciding you must ever bear in mind the object of the whole operation and govern yourself accordingly. What is the next thing you have to think about?"

*Corporal B:* "I would have to think about the enemy. You always have to do that."

*The Director:* "You are right. You will want to know where he is. Generally he will let you know that by opening fire on you. You want to know how strong he is. That will be very difficult to determine, for the crafty enemy will keep you guessing on this point. You will want to know the range from your squad to the known position of the enemy. This you will have to estimate for yourself, and your training in musketry will stand you in good stead. Finally, you will consider, 'What is the worst thing the enemy can do to keep me from doing my job?' If you can determine this, then anything less that he does makes it all the easier for you.

"I hope all of you get these points. Let me repeat them:

1. Where is the enemy?
2. How strong is he?
3. What is the range?
4. What is the worst thing he can do to keep me from doing my job?

"Answer these questions and you have a good start on your Estimate of the Situation.

"Corporal C, what is the next step to be considered?"

*Corporal C*: "You want to review the situation of your own and supporting troops."

*The Director*: "Yes, that is the next step. How many men have you available? You know this in a flash. Where are the squads on your right and on your left? Where are the platoons on your right and left? You can verify their positions. Where is your own platoon? What is its position with relation to your squad and that of the enemy? What is your platoon doing? This will have a bearing on your decision. What weapons have you? This is important; it is put in here to cause you to remember that in addition to the rifles in your squad you have an automatic rifle and a grenade discharger. You will then see just how you can use these weapons.

"We have now considered three points of the estimate: your job, the enemy, and your own troops. What is the next point to consider, Corporal D?"

*Corporal D*: "I would now have to consider the ground over which the squad is operating. That has a big influence on what I am going to do."

*The Director*: "It certainly does. The main thing is cover for your men.

"The points about cover are: Is there a good firing position for my squad, with cover and a field of fire? You will have to look around and find the best one available. Where is such a position? Don't overlook any prospective places. Be careful about selecting conspicuous places, for they are the ones that the enemy covers with machine gun fire. What cover is there on the right flank, the left flank? Consider both your own and the enemy's cover. What cover is there to the front? Get that fixed in your mind for it has a bearing on your decision, and a mighty important one.

"What are the final considerations of your estimate of the situation, Corporal E?"

*Corporal E:* "I now have to consider the different ways open to me for doing my job, and having done that I must pick out the one that appears to be best."

*The Director*: "Right. And that's the hardest part of the operation. But if you have considered all of the things we have talked about it is comparatively easy. You can see how very difficult it would be, and how likely you would be to make a mistake if you had not considered these points.

"Now, we want some way by which we can remember these six things, and get them in the order named. If we can get them tied up with a catch word that it may be much easier to remember them. Let's try it.

"Let me review them for you.

1. My Job .....Job.
2. The Enemy .....Enemy.
3. Own Troops .....Troops.
4. The Ground .....Ground.
5. Ways open to me .....Open.
6. The Best Way .....Best.

"Now take the initial letters of these words, and you have: JETGOB—Black Sailor—JET GOB.

"Memorize this and you have it tucked away in your mind for use whenever you want it."

*Corporal E*: "We have never had it put up to us in that way before. That will be easier to remember."

*The Director*: "Now, having arrived at the best way to do your job, you have arrived at what we call a 'Decision.' In order to carry out that decision, each man must be told everything he needs to know, so that he may help intelligently in carrying out the plan. That means teamwork.

"We do this by means of orders. They must be clear and definite, so that there can be no mistake about what any man is to do. Here again we go into the thing in a systematic manner, so that no essential may be left out. Sergeant F, give the class the sequence of these orders."

*Sergeant F:* "Yes, sir. And I am going to do it by the numbers. That is the way I learned them and I believe it is the best way. Then you don't get mixed up and leave out something:

1. Tell the men what you know about the enemy, and give them the dope on our own troops.
2. Tell them your plan in a few words.
3. Tell each man what he is to do.
4. Arrange for any signals.
5. Tell the men where you will be."

*The Director*: "Exactly so. This is what we call the five-paragraph order. It applies to all bodies of troops and is always given in the same order. Following this form there is little chance for important things to be left out."

At this point the Director should take the small problems in Training Regulations 420-105 and work each one of them out in detail in a conference. He should apply the principles laid down in the Regulations to each of them and discuss at length the points that are brought out. All of this is the foundation.

Then when he goes to camp he should work up similar problems on the ground. He should take his non-commissioned officers over these in tactical walks. Then should come exercises with troops.

This process will give all of the men excellent training in minor tactics.

## Rifle Marksmanship

RANGE firing at field training camps is frowned upon. Under the liberal policy of the Militia Bureau in the matter of construction and maintenance of target ranges at home stations of the troops there should be little of it.

In the first place there is no time for the soldier to go through the preliminary course of training in rifle marksmanship at the summer camps, and without this training much of the firing on the range is a sheer waste of ammunition. In the next place, if field training schedules, which contemplate the tactical training of units, are to be carried out, there is only a limited time available for range firing in any event; and this class of training rushed through without proper coaching at the firing point is of little value.

It is contended by some that the difficulties experienced in getting men out for practice at home stations renders such practice impossible. But many units are carrying out satisfactory range practice at home stations. The success or failure rests with the initiative and leadership of the unit commander, and he must accept that responsibility.

Great stress is being placed upon combat firing at the summer camps and a number of States are going to great lengths to provide suitable combat ranges for this class of firing. An

organization that goes into a combat problem with little or no previous training in rifle marksmanship simply wastes service ammunition, the cost of which might have better been put to some worthwhile project.

The armory training period is the best time for the preliminary training, and this, followed by the range practice, will produce satisfactory results. There is then less hurry and confusion. The men can be trained carefully in the five steps and undergo the tests in them. They are then ready for the range practice which must be under the immediate supervision of trained coaches at the firing points.

Much may be accomplished by small-bore firing, and every advantage should be taken of the opportunities for it. Small-bore ranges may be constructed with very little expenditure of labor and funds, and may be either indoors or out of doors. Squad or team competitions will do much to encourage this kind of fire, which in the end will pay large dividends in target practice efficiency. That has been the experience of those who have engaged in it.

## Commendation by Chief of the Militia Bureau

UNDER his policy of writing letters of commendation when they are due Major Gen. William G. Everson, Chief of the Militia Bureau, this month addressed such a letter to Col. E. L. Head, 180th Infantry, Oklahoma National Guard, Muskogee, and Capt. R. A. D. Stanis, Infantry (DOL), U. S. A., instructor with the regiment, on their report of a mobile regimental command post designed by them. This report will be carefully considered by the Militia Bureau in connection with a study now being made on the subject of this type of equipment for the National Guard.

## Wearing Belts

THE Militia Bureau has received a number of pictures of National Guard units dressed in the new Melton olive drab roll collar uniforms. The improvement in appearance is marked. However, there is one feature that detracts materially—it is the position and wearing of the cartridge belt.

One picture showed some of the belts worn low around the hips; and others sagging on the left side. The only way to secure a uniform and neat appearance is to wear the belt well up on the body and to have it adjusted so as to keep it there. By wearing the belt in this fashion it is horizontal across the body and the organization presents a neat and uniform appearance.

Get your belts tightened up, have every man wear it as indicated here, and you will never permit them to be worn in any other way. The effect is outstanding and immediately apparent. This one adjustment will improve the appearance of your outfit just about a hundred per cent. Try it out and be convinced.

## N. C. O. Training Periods

PERIODICALLY the 147th Infantry, Ohio National Guard, issues a publication under the title of *The Bulletin*. In its pages Col. Don L. Caldwell, the regimental commander, includes a message to his company commanders. In the last number the subject of a paragraph was the train-

ing of noncommissioned officers, in which he said:

One of your junior officers should be assigned as non-commissioned officer instructor and he should be held strictly accountable to you for the proper and efficient training of them. He should prepare, under your supervision, an interesting, concise, and well-planned instruction schedule. Each noncommissioned officer should be required to attend classes under penalty of forfeiture of his grade. The members of the class should know in advance what the work for the following session is to be, in order that they may have time to make proper preparation. At the beginning of the course, a short talk by you personally, would be in order and you might stress the high points of the course and the results you expect at the end of the course from each man. A little supervision of the course from time to time would be of great help. It would show the men that you are interested, and the instructor that you are checking up on him.

The school should not be held during the time allotted to drill. Require the class to be present in uniform for the school assembly, which should precede the hour for drill training by thirty-five minutes. This will give an instruction period of thirty minutes and a five minutes intermission before drill to allow the noncommissioned officers to check up on the rest of the company before the drill period begins.

Colonel Caldwell merely suggests that the school period precede the armory training period. He has no objection to holding it on some other night in the week, but he enjoins all company commanders to make it a systematic course of training whenever it is conducted. He refers to the noncommissioned officers as the organization backbone, which they surely are, and he insists that the school be so planned as to result in a general improvement in the morale, abilities, and general value of these men.



## Field Inspections

THE scope of the field inspections of the National Guard is to be enlarged. This is being done in order that the Militia Bureau may have a clear-cut picture of the combat efficiency of all units.

It has been estimated that this can be accomplished by only the actual participation of National Guard units in combat and tactical exercises during the period of field training. To this end such exercises will be included in the training programs of the troops, in future years. Such exercises, together with the performance of the organizations in camp routine and interior economy, will form the basis of the rating.

In order to test out the soundness of the proposition it will be put into operation in two corps areas during the camps of 1930. From the information so obtained a system will be evolved that will secure the desired results.

This means that during the next armory drill period of training the units will have to be grounded thoroughly in the combat principles of their arm in such way that little time will be consumed in putting these principles into practice in the field.

## Adjutants General Convention

ADJUTANTS General and U. S. Property and Disbursing Officers from forty-one states attended the convention of the Adjutants General Association at the Militia Bureau in Washington on April 14, 15, and 16. It was one of the most successful affairs that the Association has experienced in its history.

Gen. Frank D. Beary, of Pennsylvania, the President of the Association presided, and Gen. H. T. Johnson, of Vermont, acted as secretary.

Among those who addressed the convention were Hon. F. Trubee Davison, Assistant Secretary of War; Gen. C. P. Summerall, Chief of Staff of the Army; Maj. Gen. Wm. G. Everson, Chief Militia Bureau; Maj. Gen. J. W. Gulick, Chief Coast Artillery; Col. W. H. Waldron, Executive Officer, Militia Bureau; and Col. F. W. Coleman, Finance Department, who presented the army pay bill.

Several weeks before the assembly of the convention General Beary had sent out the agenda for the convention. Based upon this, officers in the Militia Bureau prepared studies and were available to discuss the subjects in detail.

Among the subjects in the agenda were: the transportation of troops and equipment to and from field training camps by rail, side agreement A with the railroads; surveys and the use of inventory and inspection reports; caretakers and the classification of mounted units in the National Guard; disposition of excess property in the hands of the National Guard; supply and maintainence of old style uniforms, typewriters, and band instruments; scope and conduct of National Guard inspections; National Guard administration, including correspondence and paperwork in general; publicity for the National Guard; hospitalization and rehospitalization; promotion of officers and enlisted men attending service schools and the national matches; scope and conduct of correspondence courses; date of national matches; draft horses for cavalry units at field training camps; instructor personnel for the National Guard; and the proposed legislation providing for an amendment of the National Defense Act, with a view to the creation of a National Guard of the United States, which will enable the National Guard to be called into federal service without the necessity of its being drafted.

Executive sessions were held over a period of two days. The final day was devoted to a consideration of the individual problems of the States with the various divisions of the Militia Bureau.

One of the high-lights of the convention was the luncheon at the Army and Navy Club at which General Everson entertained the officers of the Bureau and the visiting officers.

# Reserves

## The Development of Military Training at the University of Iowa, 1864-1930

THE history of military training at the University of Iowa is as colorful as the flag under which it was founded. For many years the unit struggled, changed, and grew, until now, at its sixty-sixth birthday, it has become a vital organ in the body of a great university.

The Civil War had just begun. Lack of military knowledge among the greater mass of people was being keenly felt. There were no men qualified to replace lost leaders. Something had to be done.

In August of 1861, Oliver M. Spencer, President of the University, asked the Iowa State Teacher's Association to establish a military department. This was recommended to the State Board of Education, and on December 18, 1861, the University of Iowa was authorized to establish a military department.

Funds for the maintenance of the new department were not immediately appropriated, due to the needs of the Regular troops. In August, 1863, $500 was set aside by the University trustees for military instruction. Prof. E. R. White was the first to teach the subject in collaboration with gymnastics.

With the death of Professor White, Thomas Calver was appointed head of the new department. In May, 1864, he established the 44th Iowa Infantry with a company of 100-day volunteer students.

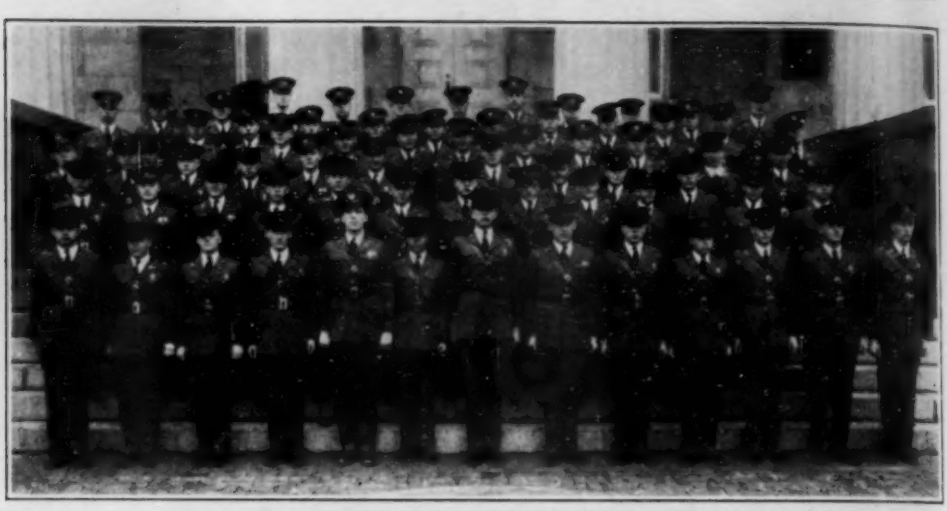
The dark period in the military history of Iowa began after 1866. This was caused mostly by the superior attitude adopted by students who were returning from the war. In 1867 military training was discontinued at the university.

Not until 1874 was this department once more opened. Lieut. Alexander D. Schenck was appointed Professor of Military Science and Tactics. During the year, 138 rifles and the necessary equipment for the same number of men was received from the Rock Island arsenal. The subject was then voluntary with students enlisting for one, two, or three terms. This method was not successful, and in 1875 the taking of military training was made compulsory to all physically fit males. The announcement of this fact caused an uproar on the campus. Students protested openly and threatened to leave school—but the anti-military feeling soon died down. Military training became an institution at the university.

Lieut. George A. Thurston assumed command on January 1, 1880. He designed a new uniform, which the students wore to church to save their good clothes. Governor's inspection was instituted June 17, 1881.

Sept. 12, 1883, Lieut. C. Knower became commander. The strength of the battalion was then 152 out of 200 male students in the collegiate department. A series of military lectures, given to the seniors, was so popular that it had to be repeated for the faculty. Ceremonies were held, out of doors, every Friday afternoon.

Lieut. Joseph Califf took charge September, 1886. He was instrumental in



**Infantry Advanced Course Students 1929-30**

establishing prize drills for the purpose of creating interest in military training. While he was commander, the first federal inspection, by Colonel Breckenridge, took place.

Under the command of Lieut. George W. Read from 1889-1893, there was an innovation in the establishment of guard mounting.

Lieut. Charles B. Vodges assumed control of the military department in 1893. He made drill requirements very rigid and exemptions from drill hard to obtain. While he was in command, the first rifle team was formed.

Lieut. Hanson E. Ely assumed his duties as eighth commander of the Iowa unit, June 1, 1897. Soon after his installation, the Spanish-American War was declared, and all but 15 of the cadets enlisted. As it was impossible to secure a Regular officer during the war, students took over the task of handling military training at the university.

Lieut. George R. Burnett assumed command from 1901-1905. He adopted the policy of giving promotion to seniors who continued with military training. Through his efforts many prizes were offered for competitive drill.

Under the command of Lieut. C. W. Weeks, 1905-1909, "Varsity Rifles," was established. This organization was similar to the Pershing Rifles, founded at the University of Nebraska.

Lieut. Morton C. Mumma assumed control from 1909-1912. For the first time in the history of the unit, a noncommissioned assistant was added to help the commandant.

During the period from 1912-1916 there were three commandants: Lieut. James A. Mars, Lieut. Corbit S. Hoffman, and Lieut. Robert T. Phinney.

Captain Mumma reassumed command in 1916. March 2, 1917 the university was granted an infantry unit of the R. O. T. C. Now the government supplied all necessary equipment, and many more students became interested in military training. The last vestige of feeling against compulsory drill disappeared.

Capt. Andrew C. Wright, retired, was made commandant in 1917 and died in July, 1918.

During the war the Students' Army Training Corps took the place of the military department. All students who had been at R. O. T. C. camps were commissioned as second lieutenants, and sent to various colleges where they acted as instructors of military training.

The ending of the war saw the discontinuance of S. A. T. C. and the resumption of the R. O. T. C. under Albert L. Lane.

Colonel Mumma was appointed commandant for a third time January 14, 1919. Medical and dental units were formed for the first time, the band was organized, and the Officers' Club, with membership open to all cadet officers, was founded.

Facilities for military training have been gradually increased until today, federal inspectors have ranked Iowa as the best equipped, for this purpose, of any institution west of the Mississippi.

July 31, 1928, Lieut. Col. Converse R. Lewis became commandant. Under his leadership Pershing Rifles, the Crack Squad, appointment of an Honorary Woman Cadet Colonel, and an increase of the band from 72 to 125 members, were added as new features.

The following table best illustrates the growth of the unit (Figures as of February, 1930):

| | *Basic* | *Advanced* | *Total* | |
|---|---|---|---|---|
| Infantry ..... | 913 | 81 | 994 | |
| Engineers ..... | 193 | 29 | 222 | |
| Medical ..... | 60 | 67 | 127 | |
| Dental ..... | 41 | 39 | 81 | 1424 total students |

Last year's federal inspector rated the unit as excellent in all respects.

## Army Officers Mess Organized in Los Angeles

THERE was recently organized in Los Angeles, California, an Army Officers' Mess which meets every Tuesday night in a special banquet room at Leighton's Broadway Cafteria, 540 South Broadway. The luncheon is cafeteria style, Dutch treat, order what you want from a dime to a dollar.

The object of this Mess is to provide an informal week-day meeting place where Army officers may meet and enjoy a few minutes of relaxation and companionship. It also provides a place for meeting and entertaining prominent visitors who are interested in army matters, and for promoting and stimulating good fellowship among Reserve, National Guard, and Regular Army officers and organizations. A further purpose is to stimulate and develop interest in the C. M. T. C., the R. O. T. C., the Officers Reserve Corps, the National Guard, and the Regular Army, and to give active support to the national defense.

The Mess invites and urges officers of all branches and all services to participate.

Regular features of the organization are: no dues, no long speeches, no assessments or financial obligations, no reserved seats, come when you please, stay as long as you please, go when you please.

The Army Officers' Mess had its beginning in the fact that the officers of the 363d Infantry messed together before attending the troop school.

# Books

THE STORM OF STEEL, by Ernest Junger, Doubleday, Doran and Company, Inc., New York, 1929. 284 pages, $2.00.

*The Storm of Steel* is a narrative of the late war by a German Infantry officer, who served at the front for four years, mostly as a company officer, and who was wounded fourteen times.

Although of little historical value, due to the limited vision of one who never served as other than a company officer or in a minor staff position, the work is full of the kind of valuable military information acquired only by one who has been through the trial of war.

In his introduction to the book R. H. Mottram correctly states that there are mistakes of fact, statements of things seen or done on battlefields at moments when neither the author nor anyone else could be sure of accuracy, yet the whole is stamped with truth.

The writer's description of his experience with the general staff officer after losing ten out of fourteen men in a raid, and his reprimand for failure to keep headquarters at the rear informed as to the fighting, were truly indicative of front line conditions.

To the infantry officer who desires useful information on small units in war this book is recommended. It is doubtful if any book has been published which more truly depicts the war as it was fought on the Western Front.

UNCLE SAM'S CAMELS, edited by Lewis B. Lesley. Harvard University Press, Cambridge, Mass., 1929. 281 pages. $4.00.

*Uncle Sam's Camels* is a journal of May Humphrey Stacey, supplemented by the report of Edward Fitzgerald Beale concerning the experiment of Jefferson Davis, Secretary of War, in introducing camels as beasts of burden in the southwest.

Beale and Stacey accompanied the Camel Brigade which marched from the gulf coast of Texas to Bakersfield, California, 1857-1858.

The experiment was remarkably successful, but the hostility of Indians and mule drivers to the camel, and the advent of the Civil War and the railroads all combined to cause the abandonment of the idea of using camels in the southwest.

In March, 1899, the legislature of Nevada repealed the act of February, 1875, which prohibited camels and dromedaries from running at large on or about the public highways of the State of Nevada.

Intensely interesting, *Uncle Sam's Camels* is a valuable addition to the history of the many efforts made to lessen the isolation of the scattered camps and posts, and to bind by efficient transportation lines the dispersed settlements of the southwest.

PARTY GOVERNMENT IN THE UNITED STATES, by John W. Davis. The Princeton University Press. 1929. $1.25.

According to a statement in the back, "this volume comprises the Stafford Little Lectures for 1929, delivered at Princeton University." It is arranged in two parts—"The Place of the Party in American Life" and "Party Principles, Leaders and Nominations."

The first part, to quote Mr. Davis' own words, is a "meager outline" of the history of the four principal "parties" of American political life. He also mentions by name most, if not all, of the numerous other parties that flourished for a moment and then died. Political parties are a spontaneous and natural development under our form of government. They are necessary for its continuation. Therefore, instead of abolishing parties it is the duty of good citizenship to strengthen them. The United States is irrevocably committed to the two-party system, not only by tradition, but by the actual practical test of time. "The best guarantee and assurance of honest government is a vigilant, critical and active opposition." Every citizen should identify himself with one party or the other and be an active worker in it.

In the second part is a strong appeal for a more courageous leadership. There is also a very brief history of the four methods successively used in the United States for the nomination of candidates to office. The method now in use—the direct primary—is discussed rather at length.

*Party Government in the United States* is a very interesting little booklet for officers to read. For those who desire to study the subject deeper it offers a good starting point; for others it is a way to obtain a minimum intelligent knowledge of this particular subject.

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THE BOLT, by P. R. Shore. E. P. Dutton and Company, New York, 1929. 299 pages. $2.00.

The body of the wife of the squire of Ringshall village, found near a prehistoric Druid altar, an elf bolt (a flint arrowhead), an old woman of witchly propensities, a highly superstitious group of rustics, a sporty squire, and a lovesick swain, all combine to give a background rich in dark mystery to the tragic happenings at a village fair.

Full of suspense and lively dialogue, *The Bolt* is a fascinating mystery story, the scene of which lies in a rustic village in the Druid country of England.

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THE WHITECOAT, by Gen. P. N. Krassnoff. Duffield & Co., New York, 1929. 440 pages. $3.50.

*The White Coat* symbol of a new order analogous to the Ku Klux Klan of reconstruction days, is a novel that deals with the activities of the counter-revolutionists in Russia.

This third epic novel of modern Russia by Krassnoff is a story of danger, struggle, suffering, and hope—vividly written. The description of the Black Mass of the Middle Ages is especially interesting, whether or not one believes that it is celebrated in Russia today.

*The White Coat* enjoyed two large printings in its first month.

# The Infantry Association

## A Reason for Reading the Journal

"* * * Many pleasant things that have been said on inspections of my organization were due to ideas I had read from the INFANTRY JOURNAL."

The above, quoted from a generally very pleasant letter to the editor, gave him a warm glow. However, the reason for repeating it here is to illustrate one way in which we try to make the JOURNAL worth while to the officers of the Infantry.

The JOURNAL has a wide range to cover, since there must be articles to please officers from all grades from general officer to second lieutenant, and officers of all three components of the Army. The Editor is making a survey of the suggestions about the JOURNAL for which he asked in a recent questionnaire and which he received in goodly number. Like all such surveys the results are a little puzzling. The old saying that "what is one man's meat is another man's poison" seems to apply with particular force. The JOURNAL is going to try to please its readers as much as possible. However, if some of them find items or articles that they do not like, they are asked to pass them by and let their minds dwell on such articles as they do like. They are also asked to send in suggestions and papers for the improvement of their JOURNAL and to lend their efforts to keeping its circulation as large as possible.

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## News Bulletins

SINCE the INFANTRY JOURNAL for April went to press the Association has sent out the following news bulletins inclosed in correspondence to officers:

NEWS BULLETIN NUMBER 10

"The Interdepartment Pay Board has furnished the Joint Committee of Congress all of the information for which the latter has asked. It is likely that the Joint Committee will meet this week to determine its next step."

NEWS BULLETIN NUMBER 11

"As a result of a conference between Senator Jones and Congressman French, the Joint Committee of Congress on Pay will commence hearings on Pay Revision as soon as the Tariff is disposed of. It is expected that hearings will begin shortly."

NEWS BULLETIN NUMBER 12

"It is confidenty expected that hearings on Pay Revisions will begin this week.

"The Chamber of Commerce, Civic Clubs and Patriotic Organizations which have sent resolutions to Congress urging the passage of a more equitable pay bill have totalled sixty-eight (68)."

NEWS BULLETIN NUMBER 13

"Senator Jones has called a formal meeting of the Joint Congressional Committee on Pay, for Saturday, April 5th. Senator Jones appreciates the urgency of the pay question, and has stated that he is in favor of holding hearings at night so that the matter may be expedited."

THE winner of the Edwin Howard Clark Machine Gunners' Trophy for this year is Company H, 18th Infantry, Fort Hamilton, New York, with an average score of 398.678.

The ten machine gun companies that came next are the following:

| | |
|---|---|
| Company D, 18th Infantry ..... | 386.437 |
| Company D, 28th Infantry ..... | 385.687 |
| Company H, 16th Infantry ..... | 383.473 |
| Company H, 4th Infantry ..... | 377.432 |
| Company D, 8th Infantry ..... | 373.574 |
| Company D, 12th Infantry ..... | 369.588 |
| Company M, 18th Infantry ..... | 365.298 |
| Company M, 12th Infantry ..... | 365.178 |
| Company M, 28th Infantry ..... | 359.83 |
| Company D, 7th Infantry ..... | 356.481 |

The Edwin Howard Clark Machine Gunners' Trophy is a bronze group representing a machine gun in action. It is to be competed for annually and given into the custody of the winning company. The company at the same time receives for permanent possession a bronze placque and a cash prize of about $500.

# 62% WERE REPEATS

SIXTY-TWO out of every one hundred orders for FWD trucks placed last year came from owners of FWD trucks. Thirty-eight per cent came from new friends. And the total demand for FWD's increased 46% over the year before!

These statements, we believe, contain one of the biggest stories regarding what owners think of the FWD. Sixty-two per cent! You have often heard that "The proof of the pudding is in the eating." We go one better and say: "The proof of the pudding is how one feels three hours after having eaten it." Likewise with trucks. It is not how one feels when purchasing a truck, but how he feels three months or three years afterward. How does he feel after he has had the truck long enough to have tried it out to his own satisfaction as to power, speed, ease of operation. Does the truck stand up after several years of service? How many breakdowns have occurred? How many things have gone wrong for no apparent reason? Was there something to this truck's "quality you cannot see?" What kind of service does the truck give after 25,000 miles, 50,000 miles, or 100,000 miles?

No one is in a better position to find out what a truck will do than the owner who has operated it. He can't be influenced with words or pictures. No need to tell him what the truck he uses can do, *he knows*. If he isn't getting satisfaction he is going to get rid of that make of truck and look for something else. If he thinks his trucks are giving him what he has a right to expect in the way of performance and economy, he is going to order more of the same make. A customer may be "sold" the first time, but after that *he buys*.

Drive through front and rear wheels.

•

Manufactured by the oldest and largest manufacturers of four wheel drive trucks in the world.

•

Steer as easily as your pleasure car.

•

A general service truck which adapts itself to special needs.

•

Furnished in 2 to 10 ton sizes. Including six wheel and tractor trucks.

Naturally we are proud to state that sixty-two out of every one hundred orders for FWD trucks placed in 1929 came from owners of FWD's.

You too may need FWD trucks to speed up your work and lower your costs. They will easily handle your regular work and will also take care of those emergency jobs which are too difficult for the ordinary truck.

*Write today for FWD literature.*

**The Four Wheel Drive Auto Company**
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